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The New England JOURNAL of MEDICINE

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THE NEW ENGLAND PEDIATRIC SOCIETY AND
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OWNED AND PUBLISHED BY THE MASSACHUSETTS MEDICAL SOCIETY

Volume 198, Number 6
$6 per Annum, 25c per Copy

MARCH 29, 1928

Published Weekly in Boston
at 126 Massachusetts Avenue

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The New England
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ORIGINAL ARTICLES

THE EVALUATION OF PRESENT METHODS OF TREATMENT OF LESIONS OF THE STOMACH AND DUODENUM*

BY DONALD C. BALFOUR, M.D., F.A.C.S.†

I APPRECIATE very much the honor of having been invited to address the Suffolk District Medical Society; and it is very pleasing to believe that any remarks which I may make on the treatment of lesions of the stomach and duodenum will, in all probability, be favorably received because the attitude of the medical profession of Boston on this question has always been characterized by a consistent conservatism which has had a most wholesome influence on the widely divergent opinions held on the subject.

Peptic ulcer, the most common organic disease of the stomach and duodenum, presents so many points worthy of discussion that I shall confine myself largely to evaluating the present methods of management of this disease. There are certain basic facts in connection with peptic ulcer which influence the selection of the method of treatment and also the results of such treatment. The most important of these facts are that peptic ulcer, once it has become established, is one of the most chronic conditions with which the physician has to deal, and exhibits the greatest variations in its uninterrupted course. It may heal spontaneously, it may heal under a very simple modification of the patient's habits of living, it may heal under more elaborate and more prolonged methods of management, it may be the direct cause of the death of the patient from hemorrhage, perforation, obstruction, or malignant degeneration, or indirectly from prolonged disability, or it may progress to a chronic stage and become so resistant to any form of medical treatment that surgical treatment remains the only means of cure. Occasionally, even after the lesion is removed by some surgical procedure profoundly modifying the secretory, sensory, and motor functions of the stomach, the disease may recur and necessitate further surgical measures. All of these possibilities explain why the treatment of the disease is necessarily so varied; when treatment is disappointing, it is often due to an unwise selection of method. These variations in the manifestations of peptic ulcer and in the methods of its treatment are in part an explanation of many of the extravagant claims made for certain methods of treating the disease. The published results of these methods present a curious paradox: on the one hand it is claimed that chronic duodenal ulcer can be cured almost invariably by medical management; on the other hand it is asserted that the only way to cure the same disease is to remove a large portion of the stomach.

It may be that the difficulties in treating this chronic disease can be attributed to our lack of knowledge of its cause. It is true that the manner in which the lesion is formed, its method of progress, and the complications to which it gives rise are well known, but the reason why a small erosion in the gastric or duodenal mucosa should develop into a chronic process is still a matter of conjecture. Observations of great interest have recently been made to demonstrate the process of healing in peptic ulcer, and the variability in the rate of healing according to the situation of the ulcer. Fortunately an ulcer entirely comparable to the ulcer seen in man can be produced in animals by Mann's method of diverting the alkaline secretion of the duodenal loop into the terminal ileum. Once a chronic ulcer can be formed experimentally it is most interesting to study the conditions which promote healing and the manner of that healing.

The process of healing has been studied by Mann in experimentally produced ulcer and also by Caylor in resected specimens. They show that attempts at healing are constantly taking place: buds of granulation tissue are formed in the base of the ulcer and the margin of intact epithelium creeps out to cover it. Whether the ulcer is large or small, and whatever constitutes its base, healing depends on whether or not such granulation buds are developed. The fact that the long-standing ulcer often undergoes such fibrotic changes in its base that no granulation-tissue buds can be produced explains why such ulcers cannot heal. The chief factor in healing, therefore, is the formation in the base of the ulcer of a plug of granulation tissue with an epithelial layer of single flat cells growing out,

*Read before the Suffolk District Medical Society, Boston, Massachusetts, November 16, 1927.

†For record and address of author, see "This Week's Issue," page 311.

secondarily, from the margin of the lesion to cover the granulation tissue. The alternating character of the activities of ulcer of the stomach, if one may judge by the intermittency of the symptoms, may be due to the loss of this thin layer of tissue, by trauma or the destructive effect of digestive juices. Mann believes this and also believes that the disruption of these granulation buds explains the usual type of hemorrhage seen. Morton has shown by a series of experiments that the rapidity and the completeness of healing varies in different parts of the stomach. For instance, defects produced in the mucosa heal most rapidly along the greater curvature and most indolently on or near the lesser curvature. He has thus demonstrated experimentally one reason for the frequent incidence of chronic ulcers in the neighborhood of the lesser curvature of the stomach. Why there is such a high (over 90 per cent.) incidence of ulcers along the lesser curve is conjectural but the fact that the lines of force and consequently the greatest trauma are along the lesser curve is not without significance.

Probably the most important factor in the inability of a mucosal erosion to heal is abnormal functioning. Sir James MacKenzie in his later writings emphasizd very strongly the fact that most disease was, in the last analysis, dependent on the persistence of deviations from the normal functioning of a given organ. A clew to causation might be found in the incidence of ulcer, since it is a fact that ulcers of the duodenum are ten times as common as ulcers on the gastric side of the pylorus; and peptic ulcers in men are four times as common as in women. Although chronic gastric ulcer is a rare disease, acute mucosal erosions are exceedingly common: Robertson and Hargis have recently reported in a series of 2000 necropsies scars in 141.

Many of the phenomena of ulcer are easily understood, such as the mechanism of perforation, but others such as the cause of bleeding from peptic ulcer, the cause and the incidence of malignant degeneration of ulcer situated on the gastric side of the pylorus, and the almost unknown development of cancer in duodenal ulcer are unsettled problems. The cause of pain in peptic ulcer has been the basis of many elaborate studies and yet it has not been established whether it is due to muscle spasm from sensitization by acid, to intragastric tension or to direct irritation of nerve endings by acid. An ulcer which is confined to the mucosa produces no symptoms unless it is complicated by acute perforation or by bleeding.

Considering all these obscure phases of ulcer and its great chronicity, modern medicine has achieved a distinct triumph in controlling the disease in such a positive way. The first principle in the control of the disease is simplicity and safety. Since attempts at healing are normally taking place in every ulcer, it follows that many ulcers will heal without any treatment at all. It is, therefore, a principle generally agreed to that when ulcer is encountered in its early course, spontaneous healing should be afforded every opportunity and encouragement. This same principle of simplicity of treatment applies to the surgical management of ulcers which have resisted ordinary measures of treatment. The patient will, if he has the choice, elect a conservative operation which promises a reasonable prospect of cure rather than a mutilating operation which may give greater but not absolute assurance of cure. In other words, an operation of little risk which will insure partial abolition of symptoms and sufficient mitigation of disability is preferable to a radical and much more hazardous operation which promises greater relief of symptoms but may introduce an entirely new set of symptoms as disagreeable as those of the original ulcer.

The indications for treatment in duodenal ulcer and gastric ulcer differ just as markedly as the lesions themselves and their manifestations. The uncomplicated chronic duodenal ulcer may heal and not recur. The patient should be given full advantage of this possibility. A dietary regimen may enable the ulcer to heal in a short period of time, after which the patient may return to a normal diet without recurrence of symptoms. Just how frequently such results ensue is difficult to say, but it is probable that there are many mucosal erosions which set up so little disturbance in the neuromuscular function of the stomach and duodenum that a short period of relative rest enables the erosion to heal and heal permanently. In the majority of cases such treatment must be repeated and continued for an indefinite time; in many of these cases the treatment ultimately fails to abolish the symptoms and more radical measures must be resorted to. Just how long medical treatment for chronic duodenal ulcer should be persisted in depends on many factors: the willingness of the patient to adhere to a dietary regimen, the economic status, the degree of disability, the age of the patient, and the duration of the symptoms. All these thus become governing factors in determining the indications for operation. Although it is a hardship for patients to endure many years of repeated attacks, delay is apparently justified by the possibility that the ulcer may heal and by the probability that, as the ulcer becomes more and more chronic, it will lend itself more and more satisfactorily to surgical treatment.

In a similar way it is true that gastric erosions may and do heal. When such lesions have become chronic, surgical treatment should be advised unless it is distinctly contraindicated.

Of the complications of chronic peptic ulcer, whether duodenal or gastric, hemorrhage is usually an indication for surgical interference; but operation should be avoided during the hemorrhage as Lund so emphatically pointed out in his paper on gastric hemorrhage. Acute perforation demands surgical measures in the early

hours if the patient's life is to be saved. Obstruction, although it may be temporarily relieved by a strict dietary regimen and gastric lavage, is almost certain to recur and demand surgical interference; and the development of malignant degeneration in gastric ulcer can be dealt with only by surgical means. As far as the dietary regimen for peptic ulcer is concerned, I shall not attempt to discuss it. One might point out the significant fact, however, that a great variety of diets have been suggested for the treatment of this disease. Anyone who becomes interested in the medical treatment of peptic ulcer sooner or later evolves some system of dietary management which differs in some way from the numerous other diets which have been suggested.

The indications for the various surgical methods which are employed for the control and cure of peptic ulcer are next to be considered.

POSTERIOR GASTRO-ENTEROSTOMY

The operation of first importance (because it is performed more frequently than any other operation for diseases of the stomach) is posterior gastro-enterostomy. Its value is proved beyond any doubt since, in properly selected cases, not only is it capable of bringing about complete and permanent cure of symptoms but it has one advantage over all other types of operation for lesions of the stomach and duodenum, that is, it is nondestructive. If necessary, the anastomosis can be disconnected and the stomach restored to its original condition. It has no disadvantages which do not apply to other operations as well.

Posterior gastro-enterostomy has its greatest value in the treatment of chronic duodenal ulcer associated with obstruction. In such cases the results are spectacular and the more marked the obstruction the greater the indication for gastro-enterostomy. As Ryle has expressed this principle, "No attempt should be made to circumvent mechanically a lesion which is producing no considerable mechanical disturbance of function." The reverse of this is also true: the less evidence there is of interference with gastric motility or disturbed function the less is gastro-enterostomy called for and the less the assurance that it will give permanently satisfactory results. It is, however, frequently true that it is the only justifiable procedure in many cases in which no obstruction exists, that is, when the lesion in the duodenum is so situated that local excision with plastic operation on the pylorus is not feasible. The operation is also of great utility for duodenal ulcer in which hemorrhage has been a complication and direct attack on the ulcer cannot be carried out. In such cases the indirect procedure of gastro-enterostomy will insure a high degree of protection against further bleeding and in a large percentage of cases will relieve the other symptoms of ulcer.

Posterior gastro-enterostomy is frequently necessary in cases of gastric ulcer. The simplest principle in the surgical management of gastric ulcer is local excision of the lesion combined with gastro-enterostomy. Inasmuch as many gastric ulcers are situated so far from the pylorus that resection of the stomach involves the sacrifice of a large part of the healthy stomach, the method of complete removal of the lesion, by local excision along with gastro-enterostomy to protect against further ulceration and motor malfunction, should not be lightly abandoned for a more radical procedure. The value of gastro-enterostomy in correcting disturbed gastric function is illustrated in the management of gastric ulcer. Experience has shown that even if deformity does not follow removal of a small ulcer of the stomach by excision, and the pylorus and duodenum are normal, such excision alone fails, in about 50 per cent. of the cases, to afford permanent relief of disordered gastric function. The fact that the best results in these cases require the addition of gastro-enterostomy to an operation which leaves in reality a normal appearing stomach, pylorus, and duodenum, conclusively proves that in the stomach affected with ulcer gastro-enterostomy brings about changes in the secretory, sensory, and motor functions which are essential to a good result. Another extraordinary fact about gastro-enterostomy for gastric ulcer is that some of the large irremovable ulcers, particularly in the fundus of the stomach, are cured by gastro-enterostomy alone. Although gastro-enterostomy alone should not be depended on if the ulcer can be removed, the definite curative value which it exhibits in those cases in which the lesion cannot be removed, shows that it exerts an effect on the functions of the stomach which frequently permits such lesions to heal.

ANTERIOR GASTRO-ENTEROSTOMY

Anterior gastro-enterostomy is an excellent substitute for posterior gastro-enterostomy and all the advantages of the latter apply to the former. The value of anterior anastomosis has been overlooked during the last few years and its usefulness, if only as a substitute for posterior gastro-enterostomy, is great. While it is occasionally true that malformations due to anatomic abnormalities or inflammatory reaction prevent posterior gastro-enterostomy being satisfactorily carried out, it is extremely rare that anterior anastomosis cannot be performed. I usually add entero-anastomosis to gastro-enterostomy in the treatment of cancer but rarely in the treatment of ulcer. One of the definite advantages of the anterior anastomosis is that, when ulceration recurs at the anastomosis, it is more easily dealt with than when it develops at the site of a posterior anastomosis.

CAUTERY EXCISION

The simplest method by which the ulcer can be removed is by local excision; and for this the

advantages of the cautery have been repeatedly demonstrated. It stands out prominently because of its ease of performance; and it is also based on sound premises, namely, the effect of heat on infected and malignant tissue. Inasmuch as it is now generally recognized that the best treatment for chronic gastric ulcer must include its radical removal, combined with some procedure to insure symptomatic relief and to prevent recurrence of the ulcer, it is fortunate that we have at hand such simple, safe, and effective measures as cautery excision and gastro-enterostomy, the combination of which has been attended by such satisfactory results. Compared with these procedures, partial gastrectomy is primarily at a serious disadvantage for the chances of mishap during its performance are too many to warrant adoption of the operation by any but surgeons of considerable experience.

PYLOROPLASTY

Pyloroplasty is occasionally preferable for chronic duodenal ulcer or chronic gastric ulcer when the lesion is in the pyloric end of the stomach. There are many methods of performing pyloroplasty, the most important of which are the Heineke-Mickulicz, Finney, C. H. Mayo, Judd and Horsley, but the operation, regardless of the type, has its limitations. The chief objection to pyloroplasty is the fact that in a considerable percentage of cases of duodenal ulcer there are multiple lesions. Careful examination of the duodenum when symptoms of ulcer have lasted for many years will often show multiple scars encircling the duodenum. Any type of operation which deals only partially with these lesions does not afford the same prospects of permanent relief of symptoms and of permanent healing as a procedure which permits healing to take place regardless of the extent or the multiplicity of the lesions. Another limitation concerns the situation of the ulcer and the mobilization of the duodenum, and successful pyloroplasty depends to a large extent on the success with which such mobilization can be carried out. On the other hand, pyloroplasty has certain advantages, one of which is that it may include a direct attack on the ulcer, a procedure of particular value in the bleeding type. Another is that should ulceration recur or contraction develop to the point of obstruction following pyloroplasty, a secondary operation, usually gastro-enterostomy, can be carried out without great difficulty. Pyloroplasty has its greatest value in the treatment of ulcers near the pylorus on the anterior wall of a duodenum which can be easily mobilized and in which there is not extensive inflammation about the ulcer.

GASTRODUODENOSTOMY

In selected cases gastroduodenostomy, that is, anastomosis between the stomach and the first part of the duodenum to circumvent the obstructed pylorus is a valuable procedure. Its particular indication is in cases complicated by marked obstruction in which gastro-enterostomy is contraindicated because of technical difficulties and the duodenum is large enough for a satisfactory opening to be made between the stomach and duodenum in front of the site of obstruction. The Kocher method of gastroduodenostomy, that is, between the pyloric end of the stomach and the second and third part of the duodenum, has been abandoned because of the inadequate drainage which it provides and the tendency for the opening to become still smaller.

PARTIAL DUODENECTOMY

Partial duodenectomy is chiefly employed for posterior ulcers of the duodenum, particularly of the bleeding type. If such ulcers can be separated from their posterior attachments, if they are of considerable size and not too far from the pylorus, the duodenum can be mobilized to a sufficient distance below the ulcer to permit direct approximation of the end of the stomach to the end of the duodenum after the segment of duodenum has been removed. While this procedure has limited indications, it is most valuable and is safe when it can be satisfactorily carried out.

JEJUNOSTOMY

Jejunostomy for lesions of the stomach and duodenum is occasionally of great value in cases of benign lesions so inaccessible that a radical operation is unwise because it involves the sacrifice of such a large part of the stomach; the induration may be so extensive that satisfactory gastro-enterostomy is impossible. Jejunostomy, providing as it does complete rest for the stomach, is a procedure to be kept always in mind. In some instances the operation has even brought about complete cure. If there is doubt whether or not the lesion is malignant, jejunostomy can be used as a method of preparation for a second operation later if the patient continues to improve but the lesion does not entirely heal or disappear. The operation is also occasionally of value as a factor of safety in extensive and difficult operations such as total gastrectomy. In these cases the jejunostomy tube permits adequate alimentation without menace to the suture lines.

PARTIAL GASTRECTOMY

Partial gastrectomy affords the only possible cure for gastric carcinoma. It is one of the most favored types of operation for chronic gastric ulcer and it is also indicated in recurring ulcers following operations. As a primary procedure for chronic duodenal ulcer the operation is, I believe, unwarranted and will never become an operation of choice.

There are two basic types of gastric resection: the Billroth I and its modifications, and the

Billroth II and its modifications. For gastric carcinoma I believe the latter type to be the more satisfactory. It insures wider excision of the growth and its regional lymph nodes; and if gastro-intestinal continuity is restored by anterior anastomosis between the stump of the stomach and the jejunum, the resection may, if necessary, include the entire stomach. A direct anastomosis between the end of the stomach and end of the duodenum is an excellent operation for small growths at the pylorus. The disease can be eradicated and anastomosis made without undue tension on the suture lines. The segmental or sleeve resection is essentially Billroth I in type.

The chief objection to the Billroth I type of resection in carcinoma is that if the disease recurs, it is likely to do so in the region of the anastomosis or in the tissues posterior to it. The resulting obstruction in some cases necessitates a secondary operation to insure relief.

Resection by the Billroth II methods, on the other hand, is rarely followed by any difficulty in the stomach. Recurrence, when it does take place, is usually in the liver or in some distant organ and the patient is seldom a victim of the distressing symptoms attending recurrence in the stomach. For this reason partial gastrectomy as a palliative operation for carcinoma of the stomach is rather frequently indicated, that is, when it is obvious that the disease cannot be cured; the patient can be protected against an unpleasant sequence of events if the growth is removed.

Partial gastrectomy for gastric ulcer is an excellent procedure and can be justifiably employed in a large percentage of cases. For example, partial gastrectomy was chosen for fifty-eight of the cases of gastric ulcer in which operation was performed in the Clinic during the last year. The chief indications for partial gastrectomy in cases of gastric ulcer are large size, deep crater, and extensive induration about the ulcer. The possibility of such lesions being malignant necessitates a clean-cut removal of the lesion when possible and, although this can be done by local excision with knife or cautery, yet partial gastrectomy when the lesion is favorably situated involves little more risk and the results are excellent. I believe, however, that it is unnecessary in such cases to remove a large part of the stomach since this operation produces such a profound effect on the secretory function of the stomach as to be incompatible with good health. Partial gastrectomy is also indicated when other operations have failed to cure a chronic peptic ulcer. It is often preferable for gastrojejunal ulcer and for recurring ulcer in any situation after a well-accepted type of operation has failed to cure or control symptoms. Fortunately in such cases the risk of partial gastrectomy is not so great as to militate against its success as a secondary operation.

The attempt to establish partial gastrectomy as an operation for primary duodenal ulcer is a trend, I believe, in the wrong direction. Progress will more likely result from simplifying methods of treatment rather than from complicating them, particularly when they are undertaken for a lesion which does not become malignant and which is not in the stomach.

FEMORAL EMBOLECTOMY*

BY ROBERT L. MASON, M.D., AND LEWIS M. HURXTHAL, M.D.†

OCCLUSION of a large peripheral artery of an extremity by an embolus, although not a common occurrence, is nevertheless a situation fraught with exceedingly grave potentialities. Untreated, the loss of the limb supplied by the occluded vessel is, in most cases, inevitable. Thanks largely to the work of Key[1] and other Scandinavian surgeons, the operation of embolectomy for removal of the occluding embolus has been placed on a sound basis.

It has been the history of most operative procedures that once evolved, their subsequent application and the resultant evaluation of their efficacy did not become possible until the indications and type of case for which the procedure was intended became well known. This communication is not a report of brilliant results, but rather is presented to call attention to the type of case which may be benefited by the operation of peripheral embolectomy and to emphasize its emergency nature.

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†For records and addresses of authors see "This Week's Issue," page 311.

Emboli causing gross peripheral occlusion arise from thrombus formation in the left heart, less commonly from the aorta or its great branches. Factors favoring thrombosis are stasis, infection, or injury to the endothelium.

Stasis is probably the most frequent cause, associated with sluggish circulation in the recesses of the heart, particularly the auricles and their appendages. Mitral stenosis, particularly with chronic fibrillation and dilated auricles, is probably the most frequent source of intracardiac thrombosis, but it may form in any dilated heart, especially in the presence of congestive heart failure.

Infection of the valves produces verrucous vegetations which are friable and easily detached. These may become large enough to occlude vessels as large as the iliac arteries.

Injury to the endothelium, as in arteriosclerosis or lues, may be the cause of thrombosis formation. Infarction of the heart muscle with necrosis of the wall and endothelium may be followed by mural thrombi.

One would assume that sudden changes in the hemodynamics of the cardiovascular system would be the most frequent cause of detachment of thrombi. This, however, is not borne out by clinical experience. It is impossible, in fact, to say in any one patient, in view of the numerous possibilities, what might cause the detachment of a clot. It is important, however, to determine, if possible, the source of the embolus and the underlying condition present, because this knowledge will determine, to a large extent, the prognosis and the operability of the patient when surgical measures are to be considered. However, no definite rule can be laid down, even when it is known that the ultimate prognosis is poor. In bacterial endocarditis, for example, removal of an embolus is justified, because this disease may go on for many months. We believe that every chance should be offered the patient and that this can only be decided at the bedside.

Small emboli, when set free in the blood stream, are usually swept into the smaller arterial branches supplying the spleen, or kidneys, giving rise to infarctions in these organs. Mesenteric thrombosis may occur. Larger emboli are swept downward toward the iliac vessels; less commonly upward into the axillary or carotids.

The most common point for the lodgment of a large embolus is at the bifurcation of a vessel; as at the bifurcation of the aorta; at the emergence of the profunda from the femoral; at the divergence of the subscapular and axillary, and in the popliteal. At the bifurcation, the embolus assumes the "rider" position; forming an inverted Y with each branch extending downward into the branches of the vessel.

Our experience has been limited to five cases, in all of which the occlusion occurred in the femoral artery at the point of emergence of the profunda from the main trunk of the vessel.

The signs and symptoms associated with the lodgment of an embolus have been so definite in our cases that the diagnosis was easily made. Attention is first called to the condition by the sudden onset of knifelike pain, (in our cases of femoral occlusion) just above the knee. Attempts at flexion of the knee are accompanied by excruciating pain in the lower leg. On examination, the leg is distinctly less warm than its fellow; it may be cold if the occlusion has been of some hours' duration. The lower leg is waxlike in color. In all our cases there has been a mottled purplish area extending upward from the knee for about 3 inches. Pulsation is absent in the popliteal, dorsalis pedis and posterior tibial arteries. The femoral artery can be felt pulsating for a distance of about two fingers' breadth below Poupart's ligament. The pulsation is apt to appear stronger than on the opposite side, and there is a distinct sensation of a downward thrust. In three of our cases, pressure just below the cessation of pulsation has elicited pain, a finding also remarked upon by Scandinavian surgeons. A needle prick of a toe on the affected side bleeds scarcely at all.

Operation should be performed as soon as possible after the diagnosis is made. The changes in the tissues of the extremity distal to the occlusion incident to the cessation of circulation, the growth of the thrombus upward from propagation, thrombosis formation in the artery distal to the occlusion,—all demand the earliest possible restoration of the unobstructed arterial lumen.

The operation itself is not attended with great technical difficulties. It should be carefully planned, however, and provision made for the few special articles of equipment needed. These include rubber-covered vessel clamps, fine round pointed needles (No. 14 or No. 16) threaded with oiled silk, a small catheter, a syringe to fit the catheter, and a small quantity of sterile oil.

Local anaesthesia is the anaesthetic of choice. We have also used spinal anaesthesia with satisfaction. The artery is exposed by a longitudinal incision beginning about an inch above Poupart's ligament and extending downward for about five inches. The occluded artery when exposed presents a characteristic picture. Just above the occlusion the impeded current causes a downward thrust of the artery resembling that seen in a ligated vessel in an amputation stump. The embolus in our cases has had its upper end almost a centimeter above the emergence of the profunda. The vessel is distinctly narrowed just below this point for the length of the embolus, and has a peculiar cordlike consistency. Great care must be taken in the further exposure of the artery that the manipulation does not dislodge the embolus. In one of our cases this happened. After gently freeing the artery above and below the occlusion, one rubber-covered clamp is applied as high above the embolus as exposure will permit, and another about 3 cm. distal to the lower end of the embolus. An incision about 1 cm. in length is now made in the artery, beginning a short distance *above* the embolus. The upper end of the embolus now presents itself in the arteriotomy opening. With a thumb on the artery just above the lower clamp, gentle pressure upward is exerted and by a "milking" process the embolus is extruded. By this procedure the embolus may be recovered intact, together with the portion which extended down the profunda femoris. We have had much better success with this method than by trying to pull out the clot with the forceps, which usually results in morcellation and in tearing off the profunda portion. Bleeding from the profunda may occur after the embolus has been extruded, and a rubber-covered artery clamp should be applied to this vessel. It is not wise to attempt to apply this clamp earlier, since this branch is given off so abruptly and extends so deeply into the muscle that a clamp would probably impinge upon the embolus.

A number ten catheter, having been dipped in

oil, is then gently introduced into the arteriotomy opening and the interior flushed out with a 2 per cent. sodium citrate solution in order that any remaining particles may be washed out. Sponges should be laid on either side of the artery as this is done, since according to Scandinavian observers, it is possible that sodium citrate in the soft tissues may delay healing. If it is obvious that a portion of the embolus remains and cannot be dislodged by flushing with the sodium citrate solution, the arteriotomy opening is closed and another, shorter, opening made just above the lower clamp. The upper artery clamp is then loosened enough for a brisk spurt of blood to wash out any remaining particles. This done, the clamp is again tightened and the lower arteriotomy incision closed. In closing the arteriotomy incision, we have used fine Japanese oiled silk with a short, fine (No. 16) swedged needle. Two rows of sutures are taken, care being exercised that the first row *everts* the intima slightly, in order that the endothelial lining of the vessel may be well approximated. This is best done by a continuous mattress suture for the first row, followed by an over and over stitch through the small flange thus created. Small leaking points may need reinforcement.

In favorable cases, pulsation can be felt in the popliteal artery at the close of the operation, together with a distinct increase in heat in the affected leg.

Following operation, the leg is generously wrapped in cotton and a bandage loosely applied. In bed, care is taken that the leg is kept warm and that the bed-clothing does not rest on it. The patient, if his general condition permits, should lie flat in bed in order that there be no impediment to the flow of blood through the femoral artery. The following day the leg should be elevated at intervals on the Berger board, and exposed to the ultraviolet rays in order that the circulation may be aided as much as possible.

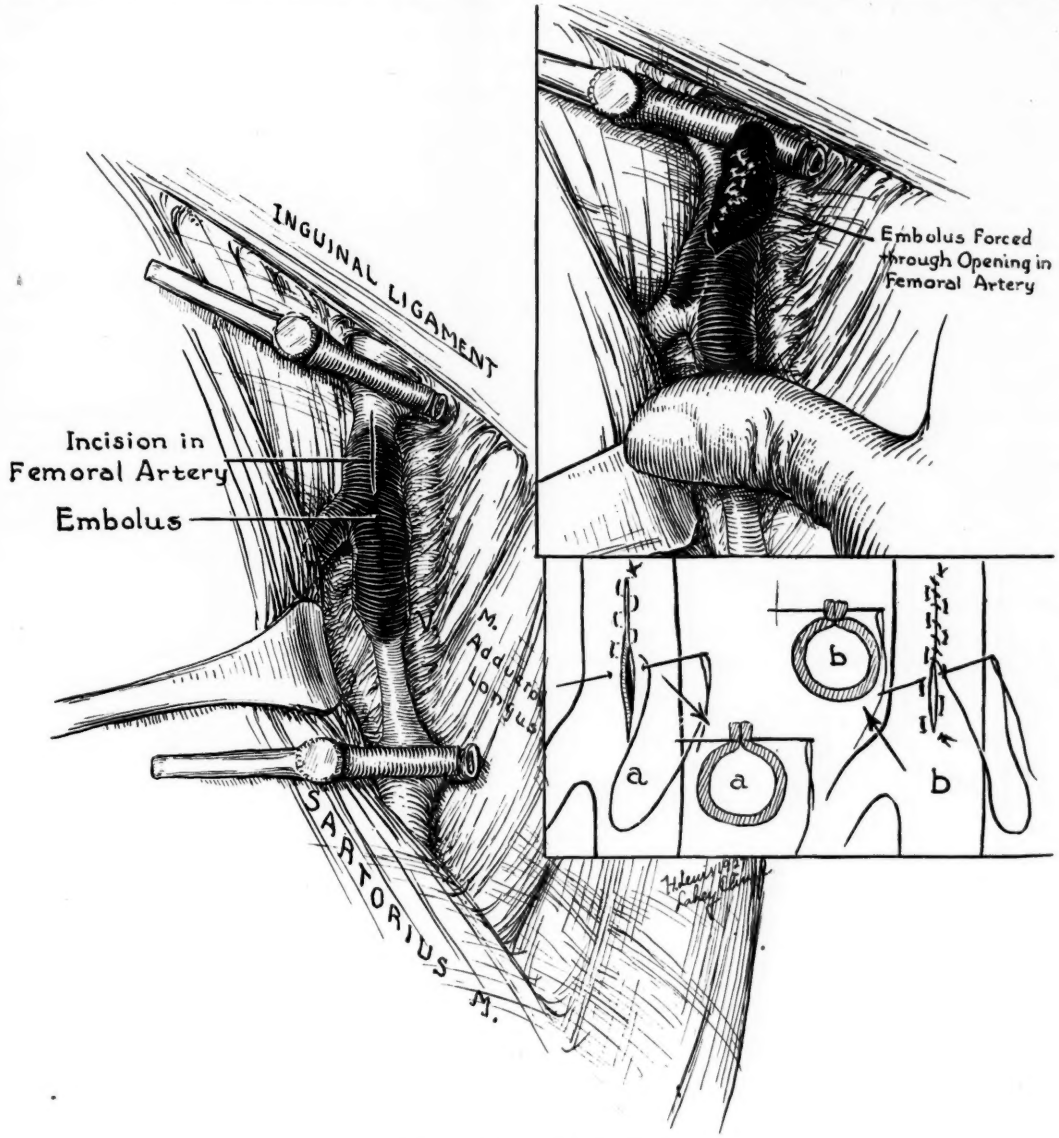

FIG. 1. Steps in Embolectomy.

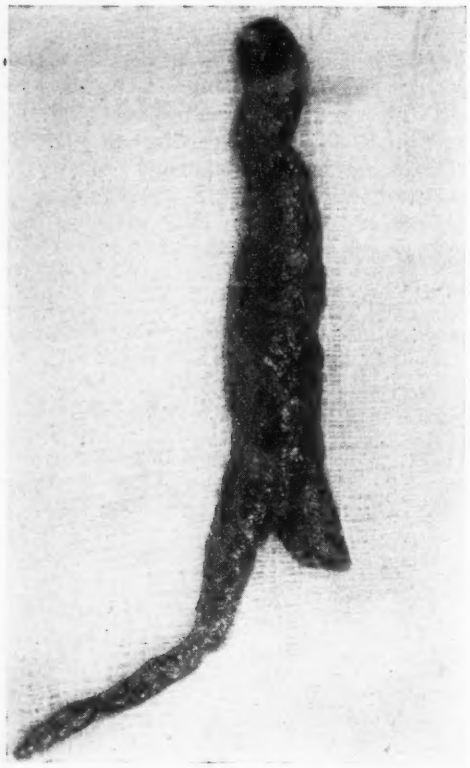

FIG. 2. Embolus removed from right femoral artery 28 hours after lodgment.

As stated previously, we have had five cases of femoral occlusion. One case was bilateral. In one patient, just after the occurrence of the embolus, the affected leg was vigorously massaged by a wardmate and the embolus apparently dislodged, since pulsation was reëstablished after this maneuver. After some weeks, during which gangrene threatened at intervals, recovery took place. In the next three cases, which were operated upon, subsequent emboli causd death before time enough had elapsed to show whether the affected leg would be saved. In the last case, from which the embolus shown was taken, operation was not done until 28 hours had elapsed following the occurrence of the embolus. Although pulsation could be felt in the popliteal artery after removal of the embolus, gangrene occurred and amputation became necessary. Examination of the amputated leg showed numerous areas of thrombosis below the site of obstruction, due, undoubtedly, to the long delay in operative interference. Autopsy was permitted in one of the cases who died. This was the case in which the embolus had occurred on both sides. The main channel of the artery was clear on both sides, although there was a fragment of embolus in the profunda on one side.

While the results in this small group of cases are disappointing, we believe the operation is justified in that when performed under local anesthesia it possesses no marked risk and may be the means of saving a limb in which amputation would otherwise be inevitable.

REFERENCE

1 Key: Surg., Gyn. and Obst., 1923, Vol. XXXVI, 309.

AORTIC ANEURYSM RUPTURING INTO THE PULMONARY ARTERY. REPORT OF A CASE*

BY CHARLES KORB, M.D., AND DAVID AYMAN, M.D.†

PERFORATION into the pulmonary artery is an uncommon situation for the rupture of an aortic aneurysm. Stevenson[1] found only three cases in a series of thirty-nine hundred autopsies. Lemann[2] collected five hundred and ninety-two cases of ruptured aortic aneurysms, only eighteen of which had perforated into the pulmonary artery. Boyd[3] reports only forty-five such cases in a total of eleven hundred and ninety-seven ruptures, many of which are probably included in Lemann's series. The report of this pathologico-anatomical rarity appears warranted.

CASE REPORT

Hosp. No. 542051. W. W., 53, a white married salesman, was admitted June 25, 1927, on the medical service of Dr. R. C. Larrabee, complaining of severe weakness of ten hours' duration. The customary detailed history was not obtained because of his condition.

Marital History:—Negative.

Habits.

He is a moderate consumer of alcohol.

Past History.

He had a Neisser infection twenty-five years ago. He does not know whether he had lues.

Two years ago he had severe headaches which a physician attributed to a hypertension of one-hundred and ninety. Dietetic treatment improved his headaches and hypertension.

Present Illness.

While carrying a heavy suitcase up two flights of stairs, he was suddenly seized with extreme weakness, dyspnea, and epigastric pain. He took a taxi home, summoned a physician, and went to bed. His weakness and epigastric pain persisted, his hands became cold and clammy, and he became nauseated. He also commenced to have pain in his left arm and hand which he attributes to carrying the suitcase. His physician administered an hypodermic injecton, and advised hospitalization.

Physical Examination.

The patient is a well-developed and well-nourished middle-aged man lying in bed with an expression of anxiety and intense pain. He appears moribund. He has moderate cyanosis, slight dyspnea, but no orthopnea.

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†For records and addresses of authors see "This Week's Issue," page 311.

His pupils are equal, regular, and pin-point in size. They do not react to light. The ears, nose, and throat are negative. The lips are moderately cyanotic. There are no cervical pulsations, stiffness, or adenopathy. The chest is that of a large well-developed man. The lungs have good expansion and resonance, normal breath sounds, and a moderate number of medium crepitant rales at the bases.

The Heart. Inspection and palpation of the precordium disclose no pulsations, impulses, or thrills. Percussion reveals no enlargement in any diameter, the left border of dullness being well within the nipple line, the right border of dullness within the right lateral sternal line, and supracardiac dullness normal. Auscultation reveals a regular rhythm except for infrequent extrasystoles. The rate is 110, and the sounds of very weak quality. The pulmonic second sound is loud and accentuated. All over the precordium, loudest at the pulmonic area and transmitted into the axilla, is a moderately loud, harsh, systolic bruit. No diastolic murmur is heard.

Across the epigastrium and right upper quadrant are a sense of resistance to palpation and dullness to percussion. This area is moderately tender. The spleen and kidneys are not palpable.

The pulse is barely palpable. The peripheral vessels are not palpably sclerosed. The extremities are cold and clammy. There are no edema or scars. The reflexes are normal.

The blood pressure is 66/40, temperature 96.4°, pulse 110, and respiration 23.

The clinical diagnosis was heart failure probably consequent to coronary thrombosis. The patient did not respond to treatment, and died three hours after admission, conscious to the end. Laboratory data was not obtained on account of his rapid exit.

NECROPSY.

The body is that of a well-developed, well-nourished elderly white male. There is no edema.

FIGURE I. The arrow leads from the aortic aneurysm, through the perforation, and into the pulmonary artery. Below the perforation lie the relatively smooth pulmonary artery, two cusps of the pulmonary valve, and the right ventricle.

Peritoneal Cavity:—Negative.

Pleural Cavities. Each contains about 100 cc. of clear, thin, straw-colored fluid.

Pericardial Cavity. It contains about 100 cc. of blood-tinged watery fluid. The surface of the left ventricle is smooth. A fibrous patch with adhering fibrous tags roughens the anterior surface of the right ventricle. The right auricle is densely adherent to the aorta by fibrous adhesions and scar tissue.

Heart. The heart weighs 350 gms. It is normal in size and position. The right side is moderately distended with blood. The epicardium is smooth and glistening except in a small patch on the anterior surface of the right ventricle, and on the posterior

surface of the right atrium. The capillaries in the epicardium are injected. There is a moderate amount of fat along the coronary arteries which are sclerosed, but not calcified or occluded. The myocardium is pale reddish-brown, glistening, smooth, homogeneous and firm. Multiple sections reveal no fibrosis. Small yellow areas 2.3 mm. in diameter, resembling fat, lie beneath the endocardium of the left ventricle. The papillary muscles are fibrosed at the apices, and the chordae tendinae slightly thickened. The endocardium is negative. The tricuspid and pulmonary valves are negative. The mitral valve is moderately sclerosed, but not calcified. The aortic valve is thickened and sclerosed. The PULMONARY ARTERY is smooth, glistening, and of normal elasticity. There are a few yellow streaks beneath the intima, running longitudinally. The left pulmonary artery is perforated 8 cm. from the margin of the pulmonary valve, or about 1 cm. distal to the bifurcation of the right and left pulmonary arteries. The opening is 0.8 cm in diameter surrounded by a rough, irregular, red granular margin. The AORTA: just distal to the aortic valve, the ascending portion of the aorta is unevenly dilated into three large sacculations. Externally they are rough and covered with shaggy fibrous adhesions, while internally the wall is uneven, puckered, and scarred with many smooth, yellowish-white non-calcified elevations. Where the wall is dilated, the normal intimal layer is replaced by roughened scar tissue covered by firm, pink, friable ante mortem clots. The thickness varies from 0.4 cm. to less than 0.1 cm. and there is a perforation through one of these thin areas leading directly into the left pulmonary artery. The perforation is just at the margin of an adherent blood clot. The remaining portion of the aorta is scarred, uneven, and firmly adherent to the adjacent tissues. The measurements are—tricuspid 13.0 cm., pulmonary 9.0 cm., mitral 10.0 cm., aortic 9.0 cm., left ventricle 1.6 cm., and right ventricle 0.3 cm.

Lungs. The apices are pale; the remaining portions, congested with blood, are red, and blood exudes from all the larger vessels.

The Liver weighs 1670 gms., and is normal in size and position. The surfaces are smooth with round edges. A single scar 6.0x3 cm., runs across the anterior surface of the right lobe, and extends 0.4 cm. into the substance of the liver. There are three small puckered areas on the under surface of the same lobe. On the under surface of the left lobe is a yellow firm scar 2 cm. in diameter and depressed 0.2 cm. below the surface; innumerable minute, hair-like, white lines run out from the margins of this in the capsule; and these are interrupted by minute, glistening, gray, pinhead elevations. The liver is reddish-brown and rather soft and flabby. The fresh surface of the liver is homogeneous, brown, and finely stippled. White fibrous lines radiate out into the parenchyma from these scars. There are two areas in the parenchyma 4 cm. in diameter, red in contrast to the surrounding brown parenchyma, and characterized by a central point and radiating lines running out in all directions.

The Kidneys weigh 350 gms. and are normal in size, shape, and position. The capsules of the kidneys strip with difficulty from red granular surfaces. The fresh surfaces show a diminution of kidney parenchyma, a narrow fibrous cortex, narrow calyces, and an absolute and relative increase in peripelvic fat.

Brain. The arteries at the base of the brain are mildly sclerosed.

The remainder of the necropsy was entirely negative.

ANATOMIC DIAGNOSES:—Aneurysms of the aorta with perforation of the left pulmonary artery; pulmonary edema; hydro-thorax; syphilis of the liver; chronic vascular nephritis; syphilitic aortitis and generalized arteriosclerosis; healed pericarditis.

The microscopic sections completely confirmed the gross anatomic diagnoses. The aorta disclosed the classical picture of a luetic process.

COMMENT

The symptoms and signs of aortic aneurysm rupturing into the pulmonary artery have been discussed by Taylor[4], Kappis[5], and more recently Scott[6]. Though rupture of an aortic aneurysm is usually immediately fatal, perforation into the pulmonary artery very frequently is not. A period of weeks, months, or even a year may elapse before death ensues. The onset is always abrupt, and frequently follows exertion. The symptoms are those of acute heart failure. Angina pectoris of the most typical character and distribution may be present.

When we consider that the rupture into the pulmonary artery creates an arterio-venous aneurysm, then the physical signs are easily deduced and interpreted. The most characteristic though by no means constant physical sign is a continuous, roaring murmur with a systolic intensification, heard loudest over the pulmonic area and transmitted all over the precordium. Various writers have described it as vibratory, gushing, rasping, machinery-like, etc. This murmur in many cases only has a systolic phase. Accompanying this murmur a systolic thrill is often palpable. In the majority of cases the second pulmonic sound is greatly accentuated. Given the above signs and symptoms, an opportunity to study the case carefully, and evidence to rule out congenital heart disease, the diagnosis is not difficult.

We wish to express our thanks to Dr. R. C. Larrabee, Chief of the First Medical Service, for permission to publish this case. We also wish to thank Drs. F. B. Mallory and H. E. MacMahon for their careful pathological study of the case.

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DERMOID CYSTS ABOVE AND BELOW THE DIAPHRAGM OF THE MOUTH

BY JOE VINCENT MEIGS, M.D., F.A.C.S.*

INTRODUCTION

THE finding of two dermoid cysts, one above the mylohyoid muscle and one below it, during one month, led to a search into the literature upon the subject and a consideration of the location of dermoids in general. Both cases reported here were originally suspected to be ranulae, although the possibility of a dermoid cyst was considered in the differential diagnosis of the second case.

*For record and address of author see "This Week's Issue," page 311.

HISTORY

Very meagre details were found in most of the books on surgery and in American literature. It remained for Colp[4] in 1925 to write a very illuminating article which covers the subject very thoroughly. A great deal of the material in this short paper has been taken from his article. In America, Brewer[1], Erdman[2], and Senn[3] have reported cases of dermoid cysts of the floor of the mouth, and very recently Cameron and Boyko[5] described a case.

LOCATION

Dermoid cysts occur in very varied parts of the body. They have been reported as having been found in the following regions:—orbit, cornea, conjunctiva, brain, frontal sinus, parietal bone, anterior wall of the rectum, pelvic connective tissue, pancreas, nose, terminal phalanx of the thumb, sacro-coccygeal region, mesentery, umbilicus, vaginal canal, round ligament, wall of the Fallopian tube, ovary. scrotum, perineum, neck, ears, sternum, pleural cavity and floor of the mouth.

EMBRYOLOGY[6]

Dermoid cysts above the floor of the mouth and just beneath the floor of the mouth may arise from epithelial inclusions which come theoretically from the following possible points: (1) the narrow region before, in and behind the median portion of the lower jaw (where the mandible unites); (2) the median portion of the hyoid bone where both halves of the second and third branchial arches grow together; (3) the region between the lower jaw and the hyoid in the middle line or just to one side where the first and second branchial arches grow together; (4) the region below the cornua of the hyoid bone where the second and third branchial arches grow together. Most of them are probbably derived from ectoderm shut in during the closure of the first and second branchial arches.

HISTOLOGY AND PATHOLOGY

Histologically the walls of the cyst should show tissue resembling that of skin. That is, the cyst should contain hair and the walls show hair follicles and sweat and sebaceous glands. But Colp points out that just as true skin may in places be free from the usual appendages, so the walls of a dermoid cyst may also be lacking. Grossly the walls externally are yellowish-white, thick, tough, fibrous, and shaggy. Inside, they are smooth and shiny and the contents of the cyst may vary from a yellowish, soupy material to thick, white, greasy, caseous matter.

ANATOMY

The mylohyoid muscle is the diaphragm separating the inside of the mouth from the neck. It is a hammock-like muscle with a median raphe. Along the surface of it, near the raphe, run the two geniohyoid muscles, which fan out to be attached to the hyoid bone posteriorly and below. Dermoid cysts above the floor of the mouth rest beneath the sublingual gland and upon the mylohyoid and against the centrally located geniohyoids, while dermoid cysts beneath the floor of the mouth are medial to and behind the submaxillary gland and extend to the hyoid bone and rest against the geniohyoid, the mylohyoid and the anterior belly of the digastric. The cysts above the diaphragm of the mouth, are, of course, in close proximity to Wharton's duct and the lingual nerve, and those beneath the floor of the mouth are in close relation to the hypoglossal nerve, lingual vein and artery, and facial artery.

The cysts may be divided into median cysts and lateral cysts. The median cysts may be further divided into "the geniohyoid cysts, those resting upon the mylohyoid muscle and spreading the floor of the geniohyoid muscles apart, and the genioglossal cysts, those resting upon the geniohyoid muscles and pushing the genioglossi apart." The lateral tumors occupy "the region above the mylohyoid, beneath the mucous membrane of the mouth."

DIAGNOSIS

The tumors of the floor of the mouth are seen as swellings under the tongue and push downward into the submental region. While ranulae are usually laterally placed the tumors lie nearly in the midline and the sublingual gland on one side or the other is pushed up closer to the underneath part of the tongue. In the case reported here, the swelling under the chin was mistaken many times for a very peculiar double chin. (This should have ruled out sublingual ranula which does not project below the jaw.) Physicians had remarked about the double chin but no one considered the presence of a cyst. The tumor caused pressure on Wharton's duct and one of the patient's chief complaints was swelling in the side of the neck during eating or after seeing tomatoes, lemons and the foods that caused salivation. It was this occasional swelling that caused the patient to consult a physician. The appearance underneath the tongue is yellowish white rather than bluish as in ranulae. Cysts beneath the floor of the mouth cause a swelling from the angle of the jaw towards the hyoid bone. A suppurating gland from a tooth might be suspected, or a cyst of the submaxillary gland. A submaxillary ranula usually bulges into the floor of the mouth and also projects below the jaw. If there is doubt, an exploratory puncture with the discovery of the characteristic sebaceous material should at once suggest the diagnosis.

In the differential diagnosis of these cysts,

ranulae must be considered as of most frequent occurrence, but puncture and bearing in mind the usual position of the sublingual and submaxillary ranulae should give a definite clue. Lipomata (Keen) are usually pedunculated and appear in the dorsum or edge of the tongue. Fibromata (Keen) are usually pedunculated, occasionally sesile, but a deep-seated growth may be impossible to recognize. Angiomata nearly always reach the surface and are identical with cutaneous angiomata. Circoid aneurysm is occasionally met with, but its humming pulsation should rule it out at once. Chondroma and osteoma are rare. Aberrant goitre of the suprahyoid or lingual type might be confusing. The suprahyoid type is centrally located, forcing apart the mylohyoid and the geniohyoid muscles. The lingual type is situated under the mucous membrane at the base of the tongue. These two forms of aberrant goitre must be differentiated from the lingual dermoid, or dermoid beneath the floor of the mouth, and the dermoid of the floor of the mouth. The goitres are always situated in the midline, a point of considerable importance. The lingual dermoid is never exactly in the midline. Lymphoma must of course be considered in the differential diagnosis. Adenoma and papilloma of the tongue are easily ruled out, as the former is in the body of the tongue itself and the latter usually of or attached to the tongue proper.

TREATMENT

The treatment of both types of dermoid cyst is surgical; that is, complete excision. Those on top of the diaphragm are best removed under local anesthesia, through an incision in the floor of the mouth. The sublingual gland is turned medially and the tumor shelled out of its bed with the finger. If there has been no suppuration, this is easily done. The lingual dermoid, or more descriptive, the dermoid beneath the diaphragm of the mouth, can be reached by an incision below and parallel to the ramus of the jaw. The submaxillary gland is then pulled laterally and with the finger the cyst is shelled out of its bed as it lies against the mylohyoid and geniohyoid muscles.

REPORT OF TWO CASES

(1) A girl of twenty-four, unmarried, had had a "double chin" ever since she could remember and for three years had had a swelling under the right ramus of the mandible when eating or looking at anything that might cause salivation. In March, 1927, her doctor, suspecting the tumor to be a ranula, opened the floor of the mouth under local anesthesia. He obtained glary mucous and packed the opening. This incision probably went into the body of the sublingual gland and therefore the drainage kept up for some time. Finally the wound healed, leaving the patient just as before the operation. On examination a definite cystic area could be felt in the floor of the mouth with a small nodule of gland above, separated from the main cyst. A diagnosis of ranula of part of the sublingual gland was made. No notice was taken of the double chin and the patient did not complain of it because she had always had it.

At operation, June 8, 1927, under local anesthesia, the floor of the mouth was opened and the sublingual gland exposed. This did not seem to account for all the swelling in the mouth and so it was lifted medially and beneath, the thick, yellow, fibrous wall of a larger tumor was found. This was dislocated with the gloved finger and easily removed. The tumor was about the size of an egg and quite heavy. A wick was placed in the large cavity and the wound closed. The patient made a very uneventful recovery and the first thing she noticed was the absence of her "double chin." The improvement was quite extraordinary. However, the cyst or swelling beneath the right mandible continued when eating or seeing food that caused active salivation. This was probably due to injury of Wharton's duct from the submaxillary gland caused by pressure of the dermoid because of its position in the floor of the mouth. The patient is much relieved and has been advised to wait before deciding upon removal of the submaxillary gland, as release of the pressure may gradually diminish the size of the apparent submaxillary cyst or ranula.

The pathologic report of Dr. Tracy B. Mallory from the Pathological Laboratory of the Massachusetts General Hospital follows:

"Specimen consists of an unruptured cyst 6 by 4 by 3½ cm. It has a thin but densely fibrous wall and is entirely filled with homogeneous caseous material. No hairs are present. There is also a small piece of salivary gland tissue showing hemorrhage and necrosis.

Microscopic examination shows a fibrous cyst wall lined with stratified squamous epithelium. The salivary gland shows a small area of hemorrhage infiltration with numerous lymphocytes and plasma cells, and also numerous foreign body giant cells many of which enclose drops and strings of mucus. Diagnoses: Dermoid cyst. Chronic inflammation of the salivary gland."

(2) A man, thirty-five years old, had had a swelling at the angle of the left jaw for one and a half years. The tumor seemed about the size of an egg

Photograph of dermoid cyst removed from Case 2.

and bulged slightly into the floor of the left side of the mouth. A diagnosis of ranula of the left submaxillary gland was made, but because of the previous case, a dermoid cyst was considered in the differential diagnosis. On June 23, 1927, under a general anesthetic, an incision was made parallel to the left jaw and the submaxillary gland exposed. No cyst of this gland could be found and so it was displaced laterally, when the same sort of cyst wall appeared as in the other case. It ran toward the pharynx

and midline above the hyoid bone. This tumor was also shelled out easily, using the gloved finger as a blunt dissector. The submaxillary gland, although larger than normal, was not removed. A wick was placed in the bottom of the cavity and the skin approximated. This tumor was nearly identical with the first one in size, shape and appearance. The patient made an easy convalescence and is now perfectly well again. The submaxillary gland recovered its normal size very rapidly.

The pathologic report of Dr. Lawrence W. Smith from the Pathological Laboratory at the Deaconess Hospital follows:

"Specimen consists of a portion of tissue which is well encapsulated and weighs 32 gms. It measures 6½ by 4½ by 2½ cm. It is covered by a connective tissue capsule, is soft on palpation and on section the center is composed of a brownish, soft, rather oily material. On approaching the capsule the color of this material becomes white. There are seen three or four hairs growing in from the capsule. There is no definite pedicle seen.

Section microscopically presents a typical cyst wall lined with epithelium on one side and connective tissue on the other. Diagnosis: Lingual cyst."

REFERENCES

1 Brewer: Ann. Surg., 1903, xxxvii, 96.
2 Erdman: Ann. Surg., 1903, xxxvii, 97.
3 Senn: J. A. M. A., 1884, iii, 197.
4 Colp: Surg., Gyn. and Obst., 1925, xl, 183.
5 Cameron and Boyko: J. A. M. A., 1927, lxxxix, 1149.
6 Die Krankheiten Des Mundes von Weil. J. Von Mikulicz-Radetzky und W. Kümmel, Jena, 1909.

UNITED STATES PUBLIC HEALTH SERVICE

CHRONOLOGICAL LIST OF CHANGES OF DUTIES AND STATIONS OF COMMISSIONED AND OTHER OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

MARCH 14, 1928

Assistant Surgeon H. L. Skinner. Directed to proceed from Savannah, Ga., to Washington, D. C., and return, to accompany patient to St. Elizabeth's Hospital. March 6, 1928.

Surgeon Lawrence Kolb. Directed to proceed from Washington, D. C., to New York City and Thiells, N. Y., and return, in connection with studies being made in medical hygiene. March 7. 1928.

A. A. Surgeon George Eugene. Relieved from duty at Ellis Island, N. Y., and assigned to duty at Charlestown Navy Yard, Boston, Mass., effective March 15. March 7, 1928.

Assistant Surgeon General W. F. Draper. Directed to proceed from Washington, D. C., to Gibbs, Tenn., and such points in the States of Tennessee, Mississippi, Alabama, Missouri, Arkansas, and Louisiana, as may be necessary for the purpose of conferring with representatives of the Rockefeller Foundation and State and County Health officials in the Flood Area, and for the supervision and inspection of the Mississippi Flood Activities. March 8, 1928.

Surgeon Grover A. Kempf. Directed to proceed from Washington, D. C., to Hagerstown, Md., and return, in connection with field investigations in child hygiene carried on at that station. March 8, 1928.

Assistant Surgeon General Thomas Parran, Jr. Directed to proceed from Washington, D. C., to New York, N. Y., and return, in connection with venereal disease control measures. March 9, 1928.

Senior Pharmacologist M. I. Smith. Directed to proceed from Washington, D. C., to Ann Arbor, Michigan, and return, for the purpose of attending the meetings of the Federation of Biological Societies to be held in that city April 12-14. March 10, 1928.

Assistant Surgeon General W. F. Draper. Directed to proceed from Washington, D. C., to Chicago, Ill., and return, on or about March 28, for the purpose of attending the Second Conference on Public Health, to be held at the Headquarters of the American Medical Association. March 10, 1928.

Surgeon L. L. Williams, Jr. Directed to proceed from Richmond, Va., to Jacksonville, Fla., and return, for the purpose of attending the meeting of the Florida Anti-Mosquito Association, on March 29. March 12, 1928.

Epidemiologist T. H. D. Griffitts. Directed to proceed from Biloxi, Miss., to Jacksonville, Fla., and return, for the purpose of attending the meeting of the Florida Anti-Mosquito Association, on March 29. March 12, 1928.

Surgeon H. F. White. Directed to proceed from Baltimore, Md., to Washington, D. C., and return, for conference at the Bureau relative to quarantine matters. March 12, 1928.

Surgeon L. L. Williams, Jr. Directed to proceed from Richmond, Va., to Washington, D. C., for conference at the Bureau regarding malaria investigations, and thence to Bristol, Penna., in connection with field investigations of malaria. March 13, 1928.

P. A. Dental Surgeon (R) A. E. Nannestad. Relieved from duty at New York, N. Y., and assigned to duty at Dental Relief Station, Washington, D. C. March 13, 1928.

BOARDS CONVENED

Board convened at New London, Conn., at call of chairman, for the purpose of determining the physical eligibility of certain candidates for temporary commissions in the Coast Guard.

Detail for the Board:

A. A. Surgeon H. A. Tyler.
A. A. Surgeon H. R. Collins.

Official:

C. C. PIERCE, *Acting Surgeon General.*

DR. EDWARD HICKS HUME APPOINTED TO HEAD POST-GRADUATE MEDICAL SCHOOL OF YALE IN CHINA

Dr. E. H. Hume formerly President of Yale in China has been appointed to the new position of director of the Post-Graduate Medical School and Hospital of that institution.

Under the new organization the Dean of the Medical School, the Superintendent of the hospital and the Principal of the School of Nursing will all be responsible to Dr. Hume.

Dr. Hume has been at work making plans for more effective administration of the Institution for some months.

He was born in 1876 graduated from Yale and studied medicine in Johns Hopkins. He was formerly with the United States P. H. Service.

He was the founder and organizer of the Medical College which is a department of Yale in China.

VERMONT STATE MEDICAL SOCIETY

GOITRE IN GENERAL PRACTICE*

BY F. J. LAWLISS, M.D.†

Mr. President and Gentlemen:

I AM very grateful and appreciative of the invitation to present to you at this time some of the problems concerning goitre.

As some of you may remember, Dr. Eberts of Montreal addressed this meeting three years ago on this same question, but more especially from the surgeon's point of view. I shall endeavor to discuss it from the viewpoint of the general practitioner.

I chose this subject because it is an important one to us here in Vermont. It is a problem we all have to meet with daily, one that is of ever increasing importance, both socially and economically, and one that seems to grow, both in spite of and because of vigorous research.

I address myself to the general practitioner because the majority of us in Vermont, and probably the majority of those present here today fall into that class; chiefly because the general practitioner is the most important figure in the field of goitre. It is he that should supervise the preventive treatment, he who is the first consulted by the patient, and he who advises and follows up the treatment, whether it be medical or surgical. Unlike the surgeon, whose responsibility seemingly and naturally ceases when the patient leaves the hospital, the responsibility of the general practitioner does not cease till the patient again becomes a useful and economic unit.

My discussion will be a résumé of the generally accepted facts both of theory and practice concerning goitre. I shall avoid contested points and will not enter into a discussion along the remote fields of investigation yet unproven.

A. FUNCTION OF THYROID.

1. We are certain that it is concerned with the development of skeletal and nerve structure.
2. It partly determines the growth of the secondary sexual characteristics.
3. It is vitally concerned with utilization of oxygen by the tissues or internal respiration.
4. There is a correlation not definitely understood in the function of other ductless glands, chiefly the thymus, adrenal and pituitary. This relationship exists both in health and disease.

Some of the puzzling results in the treatment of thyroid may some day be explained when this relationship is more clearly understood.

The clinical symptoms of goitre are in many cases directly proportional to the pathologic changes in the gland. In the progressive changes of the gland we have symptoms of over-activity of the thyroid, and in the regressive changes we have symptoms of lessened activity. Hence, it is important in treating goitre to have a clear concise knowledge of the normal anatomy, also a mental picture of the pathological changes that are going on.

B. ANATOMY OF THE THYROID.

The normal thyroid presents two lateral lobes connected by an isthmus located on the anterior surface of the trachea, beneath the anterior cervical muscles. It weighs between 30 and 40 grams, its cut surface presenting a lobulated appearance, grayish red and glistening from the colloid content. There is an average in one gram of dried gland 3 mgms of iodine. A histological section shows follicles of fairly uniform size and shape, acini filled with densely staining colloid, and lines with a single layer of suboidal epithelial cells. Between these follicles are the resting or fetal cells, so-called because of their predominance in the embryonic stages.

1. In developing goitres, simple or exophthalmic, the thyroid enlarges, the blood supply increases, and the gland becomes softer. The iodine and colloid content diminish, follicles become larger, and the epithelial cells increase in size. These changes constitute simple hypertrophy and are what occur in simple adolescent goitre. If the exciting cause continues to operate, these changes increase in degree and to them is added proliferation and the formation of new follicles and with this the infoldings and projections into the follicles. These changes constitute hyperplasia. Since these two conditions are often found present in the same gland, they are grouped together.
2. Should the exciting cause cease to operate after the gland has arrived at this stage, involution toward recovery takes place, and when complete, we have a colloid goitre. One author has stated that a colloid goitre represents a resting stage in a previous hyperplasia. This gland is smaller, blood supply is less, iodine and colloid content greater. The follicles remain larger, the cells are somewhat flatter and the colloid more vacuolated than a normal gland. Frequent progressions and regressions would result in a gland quite different from the normal. As far as is known this gland has the same function as a normal gland and the same sensitiveness to an increase or decrease of the iodine content.
3. If this gland should become so hypertrophic, so hyperplastic over a long enough period of time, breakdown or exhaustion of the parenchyma occurs, with resulting diminution in size

*Read at the Vermont State Medical Society, Middlebury, October 13, 1927.

†For record and address of author see "This Week's Issue," page 311.

of the gland, atrophy to fibrosis. This is the so-called burnt out gland seen in hypothyroidism.

C. THE ADENOMATA FALL INTO TWO GROUPS.

1. Diffuse colloidal adenomata.

Probably originating in long standing goitre, presenting in appearance multiple small encapsulated tumors, well differentiated, and which resemble the normal thyroid or colloid goitre except they have no lobulations. This condition is not of much interest to the clinician.

2. The foetal adenomata or the second type is the more serious and therefore of the more interest to the clinician. This type is circumscribed with well encapsulated masses of thyroid tissue, presenting various degrees of differentiation, from the pure foetal or resting cells to the pure colloid. They are named foetal because the foetal, or resting cells predominate. May occur at any age, in one or both lobes, however, are seen more in the right. They present, a rounded, perhaps cystic swelling of considerable size and when present since youth, even if there are no symptoms, other than those of obstruction, should be considered foetal, and especially dangerous, especially if there is a history of recent enlargement.

It has been stated that 90% of carcinomata arise from the foetal adenomata. Although this is probably altogether too high, still they do occur frequently, and here we get all the variations in the usual signs of malignancy, from the transitions of an innocent foetal adenoma, through the pre-cancerous stage to the definitely well marked malignancy with the involvement of the capsule and metastasis.

D. NEOPLASMS.

Do occur and many arise from the foetal adenomata.

We have now studied the progressive and regressive changes in the normal thyroid gland, and have learned the differentiation of the adenomata; we must bear in mind that the given gland may contain normal thyroid tissue, colloid, tumors of either kind in the various stages of differentiation, also that the iodine content is in inverse proportion to the progression and direct proportion to the involution; we can now think clinically, understanding anatomically and able to consider a case intelligently and treat it on sound reasoning and principles.

We all know that goitre is endemic and that it is closely associated with a defiicency in the iodine intake. Hence, we all can see that a gland that is so vitally concerned with metabolic function, dependent upon a fixed iodine content, may undergo certain parenchymatous changes in an effort to do a fixed amount of work with less material with which to work.

But how shall we explain the oftentimes sudden, unrestrained, fulminating and even malignant change, clinically or pathologically, which occurs from so many causes—exhaustion, recent infections, shock, or any prolonged strain, worry, etc., in short what brings on that alarming and terrible disease, exopthalmic goitre? It is that some balance is upset and the thyroid wildly manufactures and discharges into the system a greatly increased amount of its active principle, identified by Kendall for us as Thyroxin. But how does it come about? Is it a loss of restraint, usually controlled by other factors, or is it over-stimulation? I fancy the former opinion and believe that the interrelationship of the adrenal and thymus will some day be solved and that it will perhaps explain the unbalancing. Close observation and a thorough understanding by all, and the general practition here plays an important part because he observes the patient all through the disease, sees the effects of different treatments and notes the end results. For example, it has been observed that a patient will get along finely for years following a subtotal thyroidectomy, and be pronounced a cure, when some unusual strain comes along and the symptoms return.

BALANCED GOITRE.

As before stated we may have a balanced goitre clinically, indicating that whether small or large, tumorous or non-tumorous, in whatever stage, there exists function within the normal limits.

1. *Adolescent:*

The first under this classification would be the pure hypertrophic gland, moderately enlarged and firm, without pulsation and without symptoms other than those referable to subjective swelling felt particularly at the menses. Tumors may or may not be present.

2. *Colloid:*

This type results from involution of the hyperplastic or hypertrophic changes and presents the same picture as above, only that it may be much larger and softer. This gland may occur any time in the life of the goitre.

3. *Adenomata:*

Appearance of this type is characteristic—irregularly lobular or nodular, asymmetrical, cystic or rounded or firm. Its only symptoms are usually those of pressure and distortion. In cases indicating upper mediastinal pressure, keep in mind the substernal type.

UNBALANCED GOITRE

Hyperthyroidism:

Of this type we have two forms recognized clinically; one associated with

A. Pure hyperplasia, with or without tumors, having the characteristic symptoms and signs in the various degrees of severity of the so-called exophthalmic goitre. This gland may be large or small, usually uniform and symmetrically enlarged, usually without the tumor, and giving sense of active hyperemia, even to the point of pulsation with a thrill palpable at any of the

poles and often a bruit on auscultation. The exophthalmos is by no means a constant feature. The syndrome which accompanies this condition is known by all—nervousness, tachy-cardia, throbbing pulses, loss of weight and strength, tremor, trophic disturbances, characteristic eye signs, etc. The definite case is easily diagnosed.

B. The second type occurs late in life, seldom with the exophthalmos, and characterized by the more severe myocardial changes and the presence of tumors in all the stages of differentiation, from the nearly normal thyroid tissue to the calcified stage. This type is often called the toxic goitre of Plummer. This type is rather a poor risk in effecting a cure. The exact difference, fundamentally, between the two types is not known, yet they are recognized very readily, clinically, and must be handled differently by the surgeon. The heart condition in the above types is quite characteristic, and though ultimately the same changes occur, they are quite different from the beginning. The first, where we have the pure hyperthyroidism, is globular, extremely active, sensitive to every stress, both physical and emotional, oftentimes a soft general praecordial murmur, without much enlargement, at first and no irregularity. Pulses are felt everywhere and constitute an early symptom.

The second type presents advanced changes in the myocardium and we have most any degree of enlargement, with or without murmur, usually all types of irregularity, and very often symptoms of broken compensation. In this latter condition the prognosis is grave, while the smaller heart, under proper treatment, usually returns to normal.

DIFFERENTIAL DIAGNOSIS.

The definite case of hyperthyroidism is perfectly obvious, yet the border-line cases give much trouble. The various neuroses, the neurocirculatory asthenia of DeCosta and other conditions are often difficult to differentiate. However, there are certain aids which may be employed.

The basal metabolic test is of much value and is readily obtainable at all hospitals today. The neurotic has a prolonged history, and the pulse usually slows down quickly on bed rest. Basal rate seldom above plus 10, Geotch adrenalin test negative. The asthenia usually occurs in the ptotic individual with long waist and visceroptosis but with a suggestion of hyperthyroidism. Absence of eye signs and enlargement of thyroid are helpful points. Tuberculosis is occasionally confused with this type of goitre and only the careful observer with the aid of all his tests may be able to differentiate.

HYPOTHYROIDISM.

A condition of importance to the general practitioner. In nearly every neighborhood there is a child with no thyroid, or one that is diseased and without function, born of a goitre mother. He is a brachycephalic, fontanelles open, dull and heavy expression, protruding thick lips and tongue, short pudgy hands, with a tendency to umbilical hernia, scanty hair, pads of fat in the supra-clavicular region, a child somewhat like a Mongolian idiot but with a few differences. The result of feeding such a child thyroid extract is nothing short of marvelous. The other cases of hypothyroidism are usually post-operative and follow a too liberal removal of the thyroid gland or, are the results of an eroding infection. This condition lends itself readily and is corrected with thyroid gland feeding.

TREATMENT.

Having reviewed the anatomy of the thyroid, followed the several changes to pathology, and observed how the clinical symptoms are somewhat determined by these changes, and alert to the importance of acute observation of the goitre and its host, the patient, we are now in a position to intelligently treat a goitre patient with some degree of success—and we are in that position.

Two other branches in either medicine or surgery have developed so satisfactorily and the patient with the huge, deforming and obstructive goitre is assured that the mortality of his operation is less than that of an average abdominal case. We are in a position to assure a prospective mother that her children, unborn as well as born, can in a large measure be goitre free, and in the most severe hyperthyroid cases, given time and money, we can offer certain marked improvements and in many cases a cure with a mortality rate of less than 2%.

Personally, I am not in favor of ointments, iodized salt or non-standardized preparations of iodine. Besides, not knowing how much iodine your patient is getting, much harm may come from it. The best method is to always give Lugol's solution and keep your patient under careful observation while he is taking it. Insist upon the patient reporting at stated intervals and keep accurate records. Do not place too much dependence upon the advertising material on goitre supplied by drug houses, whose chief object is to sell its preparations. Rather rely upon standard text books for your authority.

PREVENTION OF GOITRE.

1. *Purely preventive.* Children in an endemic area, or born of a goitrous mother, should be given Lugol's solution, m.j-v in a glass of milk each morning for a month, spring and fall. This for the ages of 7 to 15.

Women with a history of goitre should be given this same preparation when pregnant, m.v each morning each alternate month during the pregnancy.

Women with a goitre history approaching menopause should be given Lugol's solution m.v each alternate month for the year previous, always, of course, under observation.

The above procedure is safe in the hands of any intelligent observer and may be a most important factor in the health and happiness of his patients.

Knowing that most goitres come from the simple adolescent type the prevention of this condition would seem to be an important step in medicine.

2. *Treatment of balanced goitre:* That is, with no symptoms of increased or decreased function, depends upon a number of things.

a. Simple or adolescent goitre treated practically as in the prevention. Lugol's solution, dose modified according to age of patient, given at least 4, and in cases of large goitre, 6 months of the year.

b. Foetal adenomata—remove upon diagnosis. Early they are simple of removal, carrying no mortality, but later they may be fatal. Other adenomata are removed either because of mechanical interference or for cosmetic reasons. Goitres are removed for obstruction, early signs of which are increased blood pressure, and myocardial changes, often present before the tracheal and recurrent laryngeal involvement. The position, and not necessarily the size, determines the amount and severity of obstruction. It is obvious that a man with heavy anterior cervical muscles would get obstruction before a slender necked woman with a goitre of same size.

3. *Hyperthyroidism:*

A very complicated subject and study, with many individual variations. We are always guided by the severity of the symptom, age and general condition of the patient, economic status, heart reserve etc. All have a bearing on our method of handling the case.

a. In all cases first insist upon absolute rest in bed, until you are satisfied as to the true condition of the thyroid.

b. Good hygiene, freedom from excitement, a forced diet, omitting such stimulating foods as tea, coffee, spices, the red meats and glandular foods, so as to keep the patient on as high a physical plane as possible.

c. Search for and treat the exciting cause. This may be bad teeth, static bowel, prostatic abscess, or other focus of infection. Last and most important, infected tonsils. I attended a large goitre clinic recently and was surprised to hear the surgeon in charge state that practically all goitre patients had badly diseased tonsils. The nose and throat man of this same institution said that if he wanted to get a collection of real bad tonsils he would go to the goitre ward. Hence, be on the lookout for diseased tonsils.

d. For the heart, Tincture Digitalis m.viij—xxx t.i.d.-p.c. in water. Apply ice bag and give Luminal gr. 1.5 or q.i.d.—and lastly Lugol's solution. Lugol's has found a very definite and valuable place in the treatment of goitre and especially as an aid in preparing the patient for operation. It should never be given except under the most careful observation and with the knowledge and advise of your surgical consultant. Very often remarkable results come from Lugol's alone, but do not place too much trust upon this, because only too often do we get a recurrence of the symptoms and when a patient is once iodized and has a recurrence following we do not get as good results with Lugol's the next time. The second stage of the treatment is for the surgeon. A noted surgeon in the field of goitre has said that surgery is but the second step in the treatment of goitre. The first and third belonging to the general practitioner. Just a word about X-ray or radium, it should never be used except by those of wide experience and modern apparatus. Even then it has its disadvantages and even dangers.

4. *Neoplasms.*

Treatment is entirely in the hands of the surgeon, radiologist and roentgenologist.

5. *Post-operative Treatment.*

The fact that a patient has been to the hospital and has had a thyroidectomy does not mean that she is cured and needs no further treatment—far from it—the treatment from this stage on is a most important one. We must insist upon absolute rest in bed for at least six weeks, continued good hygiene, the same forced diet and often Lugol's solution for a period of one to four months, depending on the individual case.

Lugol's is given in post-operative cases of adenomata, then in small doses for a year, given each alternate month to prevent recurrence. The physician should observe the thyroid frequently and should have a basal rate done each month. The patient should keep a record of the morning and evening pulse rate and accurate record of the weight for at least a year following the operation.

In this way the physician will be able to tell whether enough or too much of the gland has been removed, also as to the reaction of the patient. Many complain of tracheal adhesions, which may be avoided by early massage with olive oil.

Destruction of the parathyroids sometimes occurs either from removal, absorption or from scarring so that their function is impaired. This results in chronic tetany which is evidenced in all the skeletal musculature, but more especially by carpo-pedal spasm. Massive doses of calcium lactate and parathyroid extract are given, but the results are rather disappointing.

In conclusion I wish to emphasize the following points:

1. That the treatment of goitre is primarily up to the general practitioner, who should thoroughly familiarize himself with the anatomy of the thyroid gland, and he should understand the relation of the anatomical changes to the clinical symptoms.

2. That prevention is the one and important measure, because the acute hyperthyroidism, the thyroiditis, and the adenomata probably all come

from the supposedly innocent adolescent goitre. Prevent this and you ward off the others.

3. Keep to standard medicinal preparations in treating goitre, and above all means, make frequent observations and keep accurate records of your cases.

4. Recognize the myxedematous child and treat him.

5. Always be ready to call in your surgical consultant, because surgery certainly has a definite place in the treatment of goitre.

Discussion

Dr. A. L. Patch, Windsor:—*Because* I wished to get a line on the doctor's method of attack, from his paper, I wrote him, and he sent me a copy, so that I cannot plead unpreparedness, but after reading his paper I could not see that he left anything for me to say,—no place where I could contradict him, no place where I could add, unless it was perhaps simply to present the goitre stories of patients as I see them in and around Windsor, which is a definite goitre center.

The majority of the goitre patients which we see in such a center are the simply cystic types. They may develop in children as early as eight years of age, usually from eight to fifteen. They also develop, in women, at the time of the pregnancy. In these simple cystic types the Doctor has suggested using Lugol's solution. I have given up Lugol's, after trying simple sodium iodide, as I have gotten just as good results with the latter and it is more pleasant to take. I have had one particular failure with sodium iodide, in a girl about twelve, who had a vacation trip to Cape Cod, two months after we had omitted the iodide treatment. She was away about six weeks, and returned with her goitre entirely disappeared. The two months treatment on the iodide had shown no real benefit.

I have seen a very few of the myxedema cases. Most of the unbalanced goitres I have seen in our town have been the type known as Graves' disease, and one case only of myxedema. One case, which showed no symptoms, was a man of sixty who appeared with a small lump in the left lobe of the thyroid. His proved to be an adenoma, which went on, even though he submitted himself to the radium treatment and X-ray radiation. No beneficial results were obtained, and if anything the tumor grew more rapidly after radiation, and the man went out. Death, due to the extension of the adenoma.

The cases of so-called Graves' disease, up to the present time, have been equally divided between male and female. They have been mostly residents on farms. I have tried to figure why these two basic types should develop in a locality where the general type is due, primarily, to the lack of iodine. Five of them occurred following an epidemic of influenza in 1918-19. Six lived on farms, where the water supply was coming through a lead pipe. Two of them lived in the village, where this factor of lead poisoning could not enter, nor was there any definite history of acute infection. In all these I was optimistic enough to try the medical treatment rather than have them submit immediately to operation. All those that followed acute infections, responded to the treatment, with the so-called neutral bromide of quinine recommended by Jackson and Forchheimer. Whether it is the substitution of the bromine for the iodine or the action of the quinine we do not know.

Other preparations of quinine have not seemed to work, and the quantity of bromine is so infinitesimally small,—about 1/54th of a grain of quinine hydrobromide is bromine,—so in giving a grain of bromide you are giving a very little bromine. The combination is credited with benefiting a large number of cases.

Two of the cases that I have had have gone to operation, and one was to have been operated on yesterday, but was put off until the first of November. The first one was a basic adenoma and showed almost no tumor in the neck, above the clavicle, and for a time it bothered me to arrive at a diagnosis. The other man did not respond to medical treatment, and he was operated on a short time ago, and is not yet over his period of rest since leaving the hospital. The third case is to be operated on the first of November.

Just what are the broad, basic conditions to be classed as belonging in the etiological factors? It seems to me that something toxic has accounted for all of the unbalanced cases that have come up in this area where we should expect the simple cystic goitre rather than the type of goitre which suggests the excess of iodine.

Dr. M. D. Carey, Ludlow:—I don't know that I can add anything more to this very thoroughly discussed paper. I think Dr. Lawliss has covered the ground exceptionally well, but if it is not superfluous I would like to say a word more about treatments.

Our experience, in surgical lines, has not been entirely favorable, in Ludlow. Throughout the country the treatment seems to sway from medicine to surgery, and back again with radium and X-ray mixed in a bit. Just at present it seems to be in favor of Lugol's solution. I used to think I got fairly good results with potassium iodide, with external applications of tincture of iodine, or 5% of iodine petrogen. I still use the external applications, and believe I get results massaging with 5% petrogen in combination with Lugol's solution, where the case does not respond to Lugol's solution alone. Possibly it is the massage and not the petrogen, that gives the apparent results.

I find that continued use of Lugol's solution over longer or shorter periods of time, will usually give results, and in most cases that do not respond immediately to any dosage will, after

considerably long periods, suddenly respond to treatment.

I had one case in particular several years ago, apparently a quiescent case of exophthalmic goitre. I put the woman on Lugol's solution, and immediately she began to get a different set of symptoms, showing the occasional danger of the iodides in goitre. What I mean to emphasize is this, that there is a danger in connection with the use of iodine, because you may have a quiescent goitre that is suddenly stirred into action by the iodine.

A word more about preventive treatment. I believe that preventive treatment is the coming thing. Personally, I don't believe we are getting A No. 1 results in the treatment of goitre. I think our treatment is such that we would be justified in educating the public, and in putting more emphasis, on the use of preventive treatment in goitre. Not only educate the public, but when we get them educated, broadcast systematically but not promiscuously, iodine and the use of iodine in the prevention of goitre. I don't believe our cures would justify not giving this line of treatment a bit of attention.

Dr. P. E. McSweeney, Burlington:—There are just a few words which I would like to say about goitre. Before doing so I want to reiterate that we have heard a remarkable paper here this morning in the paper that was given us by Dr. Eddy.*

Dr. Lawliss has already told you much more about the anatomy of these cases than I know, but I am going to tell you some things which have given me many good results in the treatment of goitre. The ordinary cases of goitre you will not have to treat very much, but the hyperthyroid cases, and the so-called Graves' disease are the varieties of goitre which are going to give you a great deal of trouble. One of the best treatments for this condition is to put your patient to bed and have her stay from three to eight weeks. This is an excellent form of treatment. In addition to that, if your patient's heart is going very rapidly, you will find that digitalis is a very useful drug, and should be given in large enough doses to reduce the pulse rate. Generally the pulse rate runs from 110 to 140 or 150. A patient with a pulse rate of a 150 is weak, and that patient should be put to bed and digitalized. After that, when the patient is in fairly good condition the use of Lugol's solution is advisable. I have used Lugol's solution for some years, and in large doses. To children you can give small doses, but adults I start with ten drops, and have them use that for a week or two. I have them return so that I may observe the pulse rate and other symptoms. If they are not getting relief I increase the dose, and it is not unusual to have them take, one week, ten drops of Lugol's before meals, and a week later have them take 15 drops. Lugol's solution is certainly a good preparation to use in these cases.

*Published Feb. 23, 1928, issue of the N. E. J. of M., Vol. 198, No. 1.

Now, if you have had a case of exophthalmic goitre and have treated it for a long time, the best treatment will be obtained by having a part of the gland removed. There is no branch of surgery where you will get such brilliant results as you do from the removal of one lobe of a thyroid and tying off the superior and inferior thyroid arteries on the other side. Before the end of their two weeks' stay in the hospital they will tell you they feel better than they have for years.

There are other cases in which you will get very good results, sometimes by one or two applications of X-ray. I do not use the X-ray myself, but I do get very excellent results in the use of radium. Radium certainly works wonders on these exophthalmic goitres which you cannot operate safely.

The exophthalmic goitre, operated on, is rather a serious and dangerous proposition. If the blood pressure and metabolism are right, and pulse rate around 100, you stand a very good chance of relieving and curing these patients by operation. All of these methods are well worth trying. I thank you.

Dr. C. H. Beecher, Burlington:—There are one or two points in the management of goitre that I want to emphasize. Dr. Lawliss has referred to some of them. I am sure too many wait for the symptoms of exophthalmos to appear before they make a diagnosis of Graves' disease. Ordinarily, it is one of the very late symptoms.

The metabolic rate is a very useful adjunct in the diagnosis, and in the borderline cases, the deciding factor. You will save your patients a lot of inconvenience if you will remember that there is no sense in sending a case, with temperature, to have a reading done. It will be high, anyway. And in certain of the wasting conditions it will also run high, so that nothing but trouble, and confusion will result if a reading is done in those cases

It would seem as though we ought to be governed by the stage in the treatment of any condition. When we harp too much about the use of surgery or medical care, and in goitre particularly, I am satisfied that the best results are obtained by using all of the means at our command. In certain cases medical measures will be sufficient, and in certain of the cases surgery is the only resort, and in a lot of them you have got to use everything you have. and in some of those you won't get results. Whatever you use, you are going to make a serious mistake if you do not include rest. In the cases that you handle medically during the period of rest, you ought to include the prophylactic measures or removal of all sources of possible causes, particularly infections. If you use Lugol's, or any of the iodine preparations, the question of a minim or a grain, or five grains, is not the deciding factor, but the important point, if you use iodine preparation, is to use it to a point

where you are satisfied you cannot get any results from it, or until you bring the pulse rate down. Once the pulse rate is brought down you can usually maintain that lowered level by the use of quinine hydrobromide. This is a good combination to use after you have reduced the rate with iodine. If, after the use of quinine, the condition does not maintain the improvement, then the rest must be definitely surgical. In combination with the use of any medication radiation is a valuable adjunct, but it ought to be used by an expert, an expert in the use of radiation who knows something about goitre. A man may be considerable of an expert with the use of X-ray in bone work, and know nothing at all of its use in goitre. I think the important thing that impresses me about this discussion is that no matter how you handle your case, you ought to use, in any event, anything and everything you have, and you will have need of all of them.

CLASSIFICATION, PROGNOSIS AND CONTROL OF PATIENTS WITH HEART DISORDERS IN PREGNANCY*

BY BURTON E. HAMILTON, M.D.†

"HEART Diseases with Pregnancy" is a complicated subject. I will try simply to call attention to this distinct clinical problem in heart diseases; to what happens to women with damaged or possibly damaged hearts during the strain of pregnancy; and to a few of what I believe are the more important practical points in their control.

Following are some statistics gathered from the Boston Lying-In Hospital where I have watched patients with, or suspected of, heart disease through pregnancy during the last six years.

About seven and one-half per cent. of all the patients in the obstetrical clinic are referred to the cardiac clinic suspected of having a heart disease, after the routine physical examination in the prenatal clinic.

They include a large group of patients with,—(1) Rheumatic heart disease of differing degrees of severity, and several small groups, in order of size; (2) A fairly large group with paroxysmal tachycardia; (3) A fair number with congenital heart; (4) A few with cardiovascular syphilis.

Each of these groups is a distinct clinical entity, and has been studied separately. But for the purpose of prognosis in pregnancy, obstetrical treatment, and clinic and hospital management, it has proved practical to separate all the referred cases into three divisions.

The least important division, *Class III cardiacs,* is made up principally of patients who are referred for tachycardia, or breathlessness or heart pain or fainting. They prove, on direct examination, to have no clear evidence of damaged heart. They are patients with cardiac neurosis, or neuro-circulatory asthenia. Some of these patients are very troublesome,—they fear that they are in a dangerous condition. Occasional cases have very rapid hearts and falsely suggest a failing heart by breathlessness and cyanosis. Actually, they are not in danger. They deserve reassurance and hygienic regime. They never, in my opinion, deserve interruption of pregnancy. It is possible that in some of the cases pregnancy might well have been postponed. Occasional similar cases date a severe and intractable disability from pregnancy. So much for this most interesting group.

There are also other cases that can be said to have no heart disease and classed as Class III cardiacs who are referred because of extra systoles, or systolic murmurs of the cardio-respiratory type, or faint basal systolic murmurs. A few of the cases with extra systoles are troublesome,—a few have persistent and very frequent extra systoles sometimes in runs of two or more.

But, one hundred and fifty-four consecutive cases, placed in Class III, watched through pregnancy, resulted in no maternal deaths, with seven baby deaths. No cases had true signs of a failing heart.

Class II cardiacs are those who have signs of possible or doubtful heart damage, or signs of heart damage which is not considered serious, namely,—systolic murmurs, moderately loud, in many such cases there are third heart sounds, and a doubtful enlargement of the heart. Some of this group have had rheumatic fever or chorea. Undoubtedly, a fair number of the group have a true heart disease, and justify perhaps a diagnosis of rheumatic heart disease with mitral involvement. Others with basal systolic murmurs and a thrill, but without other clear evidence of heart damage, justify a diagnosis of "Possible Congenital Heart". A small group with paroxysmal tachycardia, infrequent, not severe, are included in Group II as not having severely damaged hearts.

The whole of Group II has an excellent prognosis. Though they have had no special obstetrical care, in two hundred and sixty-seven consecutive cases, there were two maternal deaths,

*Read at the Annual Meeting of the Vermont State Medical Society, Middlebury, October 13, 1927.

†For record and address of author see "This Week's Issue," page 311.

—one of these was due to a pulmonary embolus seven days after a normal delivery, the other to a late toxemia of pregnancy with sepsis. No cases developed heart failure, and it is evident that an indefinite number of such women could go through pregnancy with safety so far as the heart is concerned.

Class I cardiacs are those who have clear evidence of severely damaged hearts. This, in pregnant women, means that on direct examination they have shown one or more of the four following signs:

(1) Gross enlargement of the heart; (2) a diastolic murmur; (3) a significant disorder of the heart beat; (4) signs or history of congestive heart failure.

More than ninety per cent. of the Class I cardiacs at the Boston Lying-in Hospital were placed in Class I because they had mitral stenosis. The diagnosis, of course, based on the characteristic murmur. A very few have had gross enlargement of the heart with a systolic murmur. A few had aortic regurgitation without evidence of mitral stenosis. A few had paroxysmal attacks of tachycardia of enough frequency and severity to seem to me to warrant their inclusion in this group of patients with severely damaged hearts.

Class I cardiacs (two hundred seven consecutive cases) in the Boston Lying-in Hospital have yielded eighteen maternal deaths (8.5%), forty-six baby deaths (22.0%), fifty-two had definite signs of failure.

This does not, of course, give a true picture of the maternal death rate to be expected in Class I cardiacs in general under ideal control. But it is the actual death rate in the Boston Lying-in Hospital.

It is to be remembered that the Class II and Class III cases have had little special care whereas the Class I cases have had very special obstetrical and cardiac care.

The first thing of importance then in the control of patients suspected of heart disease, in pregnancy, is proper classification of the patients.

It would be a very valuable thing to be able to subdivide these Class I cases into groups that have a bad prognosis and others that have a good prognosis. Various attempts to subdivide them have been made, for example,—by effort tests, vital capacity determinations, classification by valves involved, etc. But these attempts have not proved practical.

It is possible to subdivide this group by very simple criteria into *Class IA*. Class IA consists of those members of Class I who have in addition to a severely damaged heart one of the following complications:—(1) congestive heart failure, past or present; (2) rheumatic fever, present or recent, or signs of active endocarditis; (3) a dangerous disorder of the heart beat, such as auricular fibrillation; (4) a complication, in itself dangerous, such as nephritis or hypertension.

Class IA is of particular importance in that its members cannot be considered in any sense as safe pregnancy risks. In my opinion, the criteria for placing a patient in Class IA are the criteria for,—(1) advising interruption early in pregnancy; and (2) for warning a patient against pregancy; and (3) for sterilization when practicable. In fact, pregnancy is not compatible with such heart conditions.

Though isolated cases falling into any one of these divisions (except cases proven to have active endocarditis) have been brought through pregnancy successfully,—it is only in the rarest cases that this has happened. Nearly all of this group that I have seen have been advised to have pregnancy interrupted; and most Class IA cases that I have seen early in pregnancy, or who probably were Class IA early in their pregnancy, who have not been interrupted, for one reason or another, have died in the latter months of pregnancy or soon after.

It has surprised me to find that roughly *twenty per cent. of all the maternal deaths in the Boston Lying-in Hospital* has been *furnished by Class I cardiacs.* Twenty-eight per cent. of all the pregnancy deaths in the Faulkner Hospital come under this classification (private obstetrical wing.)

Heart diseases complicating pregnancy constitute one of the major obstetrical problems.

There would be little satisfaction in collecting these figures if nothing could be done to improve them. The following table shows that during 1922 and 1923 there were seventy Class I cardiacs, eighteen per cent. of the mothers died, twenty-six per cent. of the babies died. During 1924, 1925 and 1926, there were one hundred and fourteen Class I cardiacs. The maternal death rate was reduced to 3.8 per cent. and the baby death rate to nineteen per cent.

To what may the reduction in death rate be attributed?

Every pregnant woman who came to the hospital and failed to have a living baby to show at discharge was considered as furnishing a baby death. So that the reduction in maternal mortality was affected not at the expense of baby mortality by a wholesale interruption of pregnancy. The number of interruptions before the eighth month has been small.

Sterilizations have been done on practically no cases except the Class IA patients, namely those who have conditions incompatible with pregnancy as described. These sterilizations have been a factor in the improved maternal death rate. Sterilization is a valuable procedure. I should hate to take care of a large group of Class I cardiacs in a pregnancy clinic if it were not possible to sterilize Class IA patients. As a matter of fact owing partly to the nature of the clientele of the hospital, only ten per cent. of the

patients come back to the hospital in succeeding pregnancies. The percentage of cases sterilized is only twenty-six per cent. of Class I. It would seem that if every case that was sterilized that normally would have come back to the clinic pregnant, had done so and died, there would have been less than one more death per year.

All Class I cardiacs have been cared for in the hospital. They have been treated as particularly important cases. They have been delivered by the visiting obstetrician under the best conditions procurable. Type of delivery and anesthesia have been determined by consultation on the individual cases. The obstetrician and the cardiologist have been personally familiar with each case and jointly responsible. The hospital has allowed every reasonable facility for special care. I am sure these cases demand this. But there has been no great change in the obstetrical treatment, type of delivery and anesthesia of these cases The facilities for caring for them were as good in 1922 and 1923 as during the last three years. As I have watched the clinic, it seems to me that the lower death rate is due to very simple matters,—an early recognition of the cases, and to their better medical control during pregnancy.

The subject of *"Control of Patients with Severely Damaged Hearts in Pregnancy"* is too involved to cover completely. More than ninety per cent. of the Class I cardiacs,—those that furnish the deaths,—are patients with mitral stenosis. Let us consider very briefly the handling of a patient without complication, or without previous decompensation, who has a mitral stenosis and is seen early in pregnancy.

First, the patient with mitral stenosis must be recognized. A certain number of failures are directly due to overlooking a mitral stenosis or failing to recognize it early in pregnancy. In this clinic and to a less extent in private cases in a large percentage of cases with mitral stenosis, there is no clear history of rheumatic infection, and there is no evidence of gross enlargement of the heart. Often the patient is leading a relatively normal life and has no knowledge of a seriously damaged heart. The diagnosis is only to be made by auscultation of the heart. I know of no physical sign that can be learned, and that is of importance, that is so difficult to learn as the mitral diastolic murmur. Nevertheless, so far as I can tell, only an occasional case is now overlooked in the prenatal clinic of the Boston Lying-in Hospital. Often the obstetrical examination fails to recognize the mitral diastolic murmur, but the examiners are on the alert for cardiacs, and send all cases with suspicious sounds or murmurs or rheumatic history for consultation.

TREATMENT

The indications for care of these cases show up most clearly in the unsuccessful group. I have personally seen more than thirty women with mitral stenosis who died during pregnancy, delivery or puerperium. A very small number have died of complications not associable with the heart. The deaths in another very small number have been sudden and unexpected;—some of these have had a fatal embolus from a thrombus formed in the heart. Others that have died suddenly have shown no cause for death.

The great majority of the deaths have occurred in congestive heart failure. Study of patients with mitral stenosis who have developed congestive failure during pregnancy who have entered the pregnancy without complication or previous failure (this group is more than twice as large as the group of fatal cases) shows only rare cases that develop failure without evident cause. The great majority of those who fail, do so because of an over-exertion or an intercurrent infection, a tonsillitis, grippe, influenza, etc., or both over-exertion and infection. Such failures are largely preventable.

Patients should be placed on a rigid regime and observed carefully to see that they are following it. At the risk of appearing banal, I will read an outline of the more important points of such a regime.

(1) Ten (10) hours in bed each night.
(2) Lie down one-half hour after each meal.
(3) No hurrying, climbing, lifting. Light housework. Walking about on the level is permitted, but climbing hills and stairs should be restricted to the absolute practical limit. No washing, scrubbing, shaking rugs, moving furniture, etc.
(4) No shopping, not even at local stores. So many women have developed congestive heart failure directly following and obviously the result of a shopping trip to town that we have routinely forbidden this.
(5) If it is necessary to move the household to other quarters, it is best to have the mother away from home for the whole process. Families, of course, often move to larger quarters when they find their number is to increase. Many cardiac patients have developed failing hearts during the process of moving.
(6) Have another woman in the house throughout the pregnancy, not only to help in the routine work and in the shopping, but to enable the patient to go to bed at once if signs of failing heart begin, or promptly at the onset of the almost inevitable grippe or cold. If help cannot be hired for any reason, it is often possible to have a self-sacrificing relative come to live with the patient, if the importance of this is thoroughly explained.
(7) Avoid "physical exercise" in an endeavor to get into condition for labor. Many patients have the idea, and they are often told by their friends that they must exercise to

get into good condition for labor. This is pernicious advice for cardiacs. They cannot rest too much during pregnancy. They should be warned against exercise specifically.

(8) Patients should be delivered in hospital. Patients should be prepared for a rest in bed of three weeks after delivery, if no failure is present, and for three weeks after all signs of failure have cleared, if failure has occurred. A similar strict regime should be followed for many weeks after discharge. The burden of pregnancy carries on to a diminishing extent for many weeks after delivery.

Attempts to avoid infection are probably largely futile, but it is reasonable to attempt to lessen the probability by the following rules:—

(1) The patient should avoid, as much as possible, public conveyances, shops, theatres,—any crowd.

(2) If any member of the family has an acute infection, the patient should keep away from the sick one as much as possible.

(3) Allow no visitors who have a cold, sore throat, etc.

(4) If, in spite of precaution, as is often the case, the patient comes down with a cold or other sickness, the patient should go to bed at once, and stay there until well.

RECOGNITION OF FAILURE

Failure, when it occurs, may come suddenly and severely. I have, on a number of occasions, seen patients without signs of failure at noontime go to town on a shopping expedition against advice and in the evening have all the signs of severe and violent decompensation. But, in the majority of cases, failure occurs more gradually. Warning signs are few,—effort tests and vital capacity estimations are untrustworthy as prophets of failure. Expectoration of a small amount of blood, with no other signs of failure should put one on one's guard. Clear failure sometimes develops later. Some patients will tell of cough on exertion, of sudden coughing attacks after exertion, and no signs be found at examination. This probably means a transient failure. A Class I cardiac who complains of a cough should be examined at once. I have seen a number of failures and some fatalities in cases where the patient coughed for a day or two, particularly on lying down at night, before notifying her doctor. The patient should be instructed to send for her physician at once, if she should raise blood or develop a cough. The first reliable sign of congestive failure, in my experience, as Sir James MacKenzie has pointed out, is persistent râles at the lung bases. These may appear before the patient herself is conscious of increasing handicap. Therefore, patients should have frequent examinations no matter how well they are doing.

TREATMENT OF FAILURE

Râles at the lung bases in Class I cardiacs means failure. *Failure indicates hospital or hospital conditions until delivery.*

There is often great temptation to disregard this rule. A patient with mitral stenosis at six months may be found to have a few râles at the lung bases; when the patient is put to bed, these signs may clear up over night, and the patient appear and seem as well as ever. I have seen a number of fatalities occur where such patients have been allowed out of hospital undelivered.

Clearly, if failure occurs early in pregnancy, the chance of bringing a patient to term successfully is slight. Therefore, most such cases indicate interruption of pregnancy. Where the failure occurs at six months or later, there is a good chance that by persistent hospital care, the patient may be carried on until the child is viable. But, in no case is it justifiable to allow a person who has once failed during pregnancy to resume activity undelivered.

It is a lot of work to take a patient with mitral stenosis through pregnancy, but if pregnant women are carefully and competently examined for mitral stenosis, and patients who have it are controlled throughout pregnancy along the lines that I have just suggested, and delivery and anesthesia are expertly done, and patients are rested and controlled during the puerperium and for a considerable time thereafter, a distinct reduction in maternal and baby death rates in a community may be expected.

Discussion

Dr. Ray E. Smith, Rutland: In behalf of the members of this Society I desire to thank Dr. Hamilton for his paper. It was splendid and full of meat. I only wish the doctor had taken a little more time and given us more from his experience, especially as to treatment. You see, doctor, we do not see enough cases in any one group, at any one time, to allow us to formulate any routine plan as to treatment. We must form our plan of treatment not so much from personal experience as from the experience of men like yourself who see great numbers of these cases and can, as a result, draw conclusions that are based on many comparisons.

Some of the members of this society will recall some of the things I have had to say relative to this subject during the past few years.

Many of you will recall the statements that have been made by others in criticism of my statements relative to the frequency of abortion and dead foetuses in these cases. That is nonsense. The bad heart risk does not abort—unless you abort her. Don't fool yourselves with that false hope. I think Dr. Hamilton will agree with me in this statement.

It may be necessary for you to terminate labor in these heart cases that the mother may be

saved. Most of these mothers stand the strain of pregnancy well, however. I wish to reëmphasize what the doctor has said relative to rest in these cases. ABSOLUTE REST is the first requisite in treatment of pregnant women, with heart lesions.

The doctor has said nothing about medication in these cases. I am a firm believer in medication in these cases. Thorough digitalization is to my mind an essential, and that in accordance with Eggelston's rule. Fifteen minims of digitalis T.I.D. is NOT "Digitalization". Use your drug for a purpose and get the effect you are after.

These heart cases do not abort. They do not die during pregnancy. *They die after labor is completed.* They die because an already over burdened heart responds to the stress and strain of labor and meets the extra demands at the expense of its reserve. They die when the demand upon that heart has been completed and the job performed. It is AFTER labor that the fatal issue comes.

I realize my temerity in mentioning Caesarian section in connection with these cases, but it has a very definite part in their treatment. Given a woman with a decompensated heart, last months of pregnancy, and commencing labor, Caesarian section under morphine, local anesthesia, or under ether, offers an alternative to labor that may well be given consideration. Especially is this true if the heart case is an aged primapara or gives a history of previous labors of great length and with instrumental termination. Caesarian section is no cure-all for the ills of pregnancy. It is an operation that is overdone by many. It is a veritable life-saver in the selected case and its relative indications are increasing amongst those best fitted to pass judgment upon obstetrical procedures. The treatment of heart disease in the pregnant woman is a complicated matter and will call upon all the skill of which you are possessed. The treatment of heart disease in pregnancy, mind you, is the treatment of heart disease. Pregnancy is simply a complicating factor.

OBITUARIES

DR. BARNET FRANK

Dr. Barnet Frank of Burlington, Vermont, died at a local hospital, eleven days after an operation for removal of the appendix.

He was born January 30, 1891, was a graduate of Burlington High School and received his medical degree at the University of Vermont, class of 1915. He had served his city as Alderman, was a volunteer in the World War, serving overseas as a Lieutenant. In college he stood high, both as a student and an athlete, playing on the Varsity football team for four years. He was a Knight of Pythias, a member of the Jewish Holy Society and of Archibald Street Synagogue.

He is survived by his wife and three sons, a mother, seven brothers and three sisters.

DR. FREMONT HAMILTON

Dr. Fremont Hamilton, for thirty-five years a practicing physician in Brattleboro, dieu of cancer, February 23, 1928, aged seventy.

He was born in Hartland, Maine, October 10, 1857, a son of Dr. Henry Warren Hamilton and Eliza Graves Hamilton.

He received his early education in the schools of Brandon, Vermont, and graduated from Middlebury College in 1878. He received his medical degree from the New York Homepathic College in 1882.

He practiced in Rutland, Vermont, and Springfield, Mass., before locating in Brattleboro, where he built up an extensive practice.

He was a member of the Vermont Homeopathic Medical Society, a Mason, and a member of the Congregational Church.

He is survived by his wife, a son, and one sister.

DR. JOHN D. BREWSTER

In the passing of Dr. John D. Brewster at his home on Pine Street, Windsor, Vt., on Wednesday, January 20th, 1928, not only have his friends and relatives, but the whole community, sustained a distinct loss. Not only was he the oldest physician in years and also in the point of service in this vicinity, but his unfailing kindness to the poor and aged, his honesty and integrity, and his interest in his friends and the affairs of the Town and State even while confined to his room by suffering, will long be remembered.

John Densmore Brewster was born in Hartland, Vt., April 19, 1850, the youngest child of Seth Brewster and Eliza McKenzie Densmore. In his early years he attended school in Woodstock, at the Green Mountain School at South Woodstock, and when 18 years of age taught for a time, his first school being in his home town of Hartland. Afterwards he attended the Burlington Medical School during 1878 and 1879, later taking a post-graduate course at the College of Physicians and Surgeons in New York City. On May 1, 1880, he came to Windsor, and for 45 years has practiced his chosen profession here, even after the ravages of disease made it almost impossible at times.

On May 31, 1894, he was united in marriage to Caroline L. Bourne of Auburndale, Mass., who died two years ago. At the time of his death Dr. Brewster had been town health officer for 30 years.

Dr. Brewster is survived by nephews and nieces Also left to mourn him are Mr. and Mrs. Joseph Osmer, who have cared for him most tenderly during his illness, Mr. Osmer having been with the doctor for a period of ten years.

DR. EATON V. REYNOLDS

Dr. Eaton V. Reynolds of Fairfax, died February 15, 1928, at the St. Albans Hospital, in his seventy-first year.

He is survived by two daughters, Mrs. James Hotchkiss and Mrs. Cecil King. The funeral was held at the home of Mrs. Hotchkiss, the following Sunday.

DR. WILLIAM WARREN TOWNSEND

In the death of Dr. William Warren Townsend, which occurred on February 20th, 1928, the State loses one of its widely known physicians and surgeons. His death was the result of cerebral hemorrhage and he lived only a few hours after the attack.

Dr. Townsend was born in Elizabeth, New Jersey, April 8, 1870, the son of Louis and Caroline McKinley Townsend.

He was educated at the Common schools of Elizabeth, at Trinity School of New York City and the Universities of Virginia and Vermont, receiving his medical degree from the latter in 1893.

In 1894 he located in Rutland and was soon an outstanding figure in the profession. For several years he has maintained an office in the city of Burlington. He was professor of genito-urinary diseases at the University of Vermont Medical College, attending surgeon in genito-urinary diseases at Mary Fletcher Hospital and Fanny Allen Hospital, consulting genito-urinary surgeon at the Rutland City and Proctor hospitals. He was also attending urologist at the Bishop De Goesbriand hospital and genito-urinary consultant at Ports of Embarkment in the World War.

He was a Lieutenant Colonel in the Officers Reserve Corps, a member of the American Medical Association, ex-president of the Vermont State Medical Society, member of the American Association Genito-Urinary Surgeons and American Urological Society, a former president of the New England Urological Society, a member of the New England Surgical Society, of the Societe Internationale d'Urologie, and contributed to many medical journals.

He was a member of St. Paul's Church, Ethan Allen Club, Waubnakee, Mohican and Champlain Yacht Clubs, the Lotus Club of New York, Mt. Mansfield Trout Club and Rutland Country Club. He was a great lover of horses, especially the Morgans and saddle horses.

He is survived by his wife who was Agnes Graves of New York City and two sons, Dr. William Graves Townsend, who was associated with him, and Guy Ballard Townsend of Rutland.

DR. ERNEST O. CHELLIS

Dr. Ernest O. Chellis, a former member of the Windsor County, and Vermont State Medical Societies, died December 28, 1927, age 57, at his home in Narrowsburg, N. Y., of Gastric Ulcer. Previous to his moving to New York State he practiced in Springfield, Rutland, Danby and Felchville. He graduated from Baltimore Medical College in 1896. He was a member of the Pennsylvania State Medical Society at the time of his death.

NEWS ITEMS

Dr. Wallace M. Pierce, graduate of U. V. M., 1898, and then practicing for five years in Middlesex and Newbury, Vermont, has returned from Howard Beach, Long Island, where he has been recently located, doing detail work for the Abbott Laboratories.

Dr. Andrews has returned to his home in Underhill from the Mary Fletcher Hospital, where he underwent an operation for appendicitis about a month ago.

Dr. Willis B. Fitch of St. Johnsbury is spending two weeks in Bermuda accompanied by professional and business friends.

Dr. John B. Gifford of Randolph has returned from an extended trip of two months. A good portion of his time was spent in visiting the clinics of Philadelphia and Rochester, Minnesota.

Dr. Ray E. Smith of Rutland was operated upon March 6th, at the Rutland Hospital for acute Diverticulitis.

COUNTY REPORTS

Meeting Washington County Medical Society at Hotel Barre, December 30, 1928. Meeting called to order by Dr. Wark. Dr. Stewart acting secretary. Dr. Wark gave resumé of work done in effort to create rules governing a Hospital to make it conform to standard of the American College of Surgeons. Dr. Lindsay showed cards and gave explanation of how the Montpelier Hospital managed laboratory examinations. After a general discussion it was moved to adjourn. J. W. STEWART, *Acting Secretary.*

MISCELLANY

REPORT OF VERMONT STATE DEPARTMENT OF PUBLIC HEALTH FOR FEBRUARY, 1928

The incidence of communicable diseases during the month was unusually low, the cases reported being as follows: chickenpox, 193; diphtheria, 3; measles, 104; mumps, 144; lethargic encephalitis, 1; scarlet fever, 59; typhoid fever, 1; tuberculosis, 10; whooping cough, 79.

The Laboratory of Hygiene made 1,947 examinations, including the following:

Examination for diphtheria bacilli	80
" " Widal reaction of typhoid fever	32
" " tubercle bacilli	138
" " evidence of syphilis	274
" " gonococci in pus	77
Examination of blood for contagious abortion in cattle	34
" " blood for white diarrhoea of fowls	948
" " water	133
" " milk	119
" " foods and drugs	9

The Venereal Disease Division reports as follows:

Cases of gonorrhea	28
" " syphilis	50
" " gonorrhea reporting for treatment	4
" " syphilis reporting for treatment	7
Cases for intravenous treatment	7
Total treatments	40
Gonorrhea outfits distributed	98
Wassermann outfits distributed	352

The Division of Tuberculosis published and distributed 12,000 copies of the Modern Health Crusader.

During the month the Division of Poliomyelitis After-care saw 38 patients, fitted 6 new pieces of apparatus and removed one plaster cast. Twenty patients were admitted to hospitals and 12 patients were discharged from hospitals.

In the Maternity and Infancy Division, the nurse visited 8 towns coöperating with leaders of various Home Bureaus, giving health talks and conducting classes in infant care. Three hundred forty-one let-

ters have been sent out to Presidents of Women's Clubs, Parent-teacher Associations, League of Women Voters and school superintendents calling their attention to the significance of May Day.

RESPONSIBILITY

The individual physician bears a responsibility to the medical profession. In so far as the medical profession, considered as such, bears an untarnished reputation for accurate knowledge of disease, skill in diagnosis, ability to render proper treatment, and honesty of purpose, the public will have confidence. This reputation can be acquired only by actual deeds. In so far as the reputation of the profession along these lines is impaired, public confidence is diminished. As public conndence in the medical profession diminishes, the prestige of irregular types of the healing art increases.

Acts of the medical profession which determine its reputation are performed by individuals. For each failure of an individual physician to personally maintain proper standards, the reputation of the profession as a whole suffers. When confidence in the medical profession is weakened, confidence in the individual physician weakens also. Certain individual acts may apparently and often times do lead to immediate gain. It is for the individual to determine whether this gain equals the cost.

Confidence in regular medical practice is the physician's largest asset. The individual physician is responsible to the medical profession, and it is a duty to commit no acts that will impair in any way the standing of regular medical practice.

W. G. R.

DO YOU KEEP A RAT BOARDER?

It has been estimated that it costs one-half cent a day to support a rat; it is also estimated that the rat population in the United States equals the human population, so the cost of supporting this army of rats exceeds the two hundred million dollar mark counting loss to property and crops. Rats are selective in their choice of food, preferring the best quality, if they can secure it, rather than the waste, so their destruction of great food storage supplies and crops must be counted as a tremendous economic loss. This loss is felt more keenly in the rural sections and on the farms where there is perhaps less crop protection against the inroads of rats. It was reported from Iowa that in one winter rats ate 500 bushels of corn out of 2,000 bushels stored and 71 dozen eggs out of 100 dozen stored.

While the economic loss is important enough to warrant a campaign against rats, the fact that rats are carriers of disease provides the more important excuse from a public health standpoint. Rats nest and breed in filthy places and frequent manure piles, garbage heaps and sewers. Thus they may directly spread disease germs from these sources by contaminating food supplies with which they are in constant touch.

In slaughter houses unprotected against rats and where offal is not "sanitarily" disposed of, rats may acquire trichinosis from eating hogs so infected, thus spreading the source of this disease. The greatest danger to health from rats is in the spread of bubonic plague due to the fact that the rat harbors the flea which may carry the infection. In European countries in the past the plague has been the cause of thousands of deaths in some of the great epidemics. Since it is known that plague is carried by the rat, precautionary measures have been developed at the borders of countries, especially at the shipping ports of infected sections, whereby the rat is kept out of boats. Thus by ship fumigation and by rat proofing of boats and docks, by the eternal vigilance of the U. S. Public Health Service our great shipping ports on the Atlantic and Pacific and Gulf are well protected against rat borne plague.

Since rats form a huge economic as well as public health problem and may be the cause of minor illnesses among individuals as well as plague epidemics, it behooves every householder to wage war against the rat, and for communities to plan campaigns against this offender. This may be done by rat proofing of buildings by concrete; by keeping food from rats, by using rat enemies such as cats, dogs and ferrets; by traps; by poisons; by shooting; by fumigation.—*Bulletin Connecticut State Department of Health.*

DANGERS OF SLENDERIZING

In the campaigns against tuberculosis now being waged in our cities and towns much of the emphasis is being placed on prevention in the *early* years of life. It is during these years under twenty that people are susceptible to this disease.

One factor in increased susceptibility to tuberculosis among young people is the present over-emphasis of the "slendering process". To keep up with the present demands for a pipe stem silhouette young people are deliberately weakening their natural resistance to tuberculosis and other diseases by keeping their weight down far below the danger line.

While an excess of overweight in an adult over 40 years is definitely counted a handicap by life insurance companies, the young person whose growth has not fully been completed should maintain a comfortable margin of weight above the normal as a protective measure against disease. Dieting because fashion dictates is an unwise plan since it may lead to a diet which is lacking in many of the essentials that normal nutrition demands and health depends upon.

Diet Rationally

Dieting, if one must, should be under the guidance of one who understands the principles of proper nutrition. There are many adherents of the various diet fads, a starchless sugarless diet, a fatless diet, a high protein diet each claiming results in amazingly short time. Probably a foodless diet is also tried by some who wish to do the trick quickly! There is nothing that should show results so soon as to provide *no* fuel for one's activity, thus draining one's own body tissues for this purpose!—*Excerpts from the Bulletin of the Connecticut State Department of Health.*

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 14061

A DARK SKINNED MAN WITH DYSPNEA AND WEAKNESS

MEDICAL DEPARTMENT

An American workman forty-three years old entered February 26.

Five months before admission he began to have dyspnea on exertion and to urinate once at night. The dyspnea had gradually increased until he now had it even when quiet. In November he stopped work. For the past three weeks he had had slight edema of the legs with pain in the calves or knee joints at times. For a week he had had slight cough. His appetite and sleep were poor. During the winter he had lost twenty-five pounds.

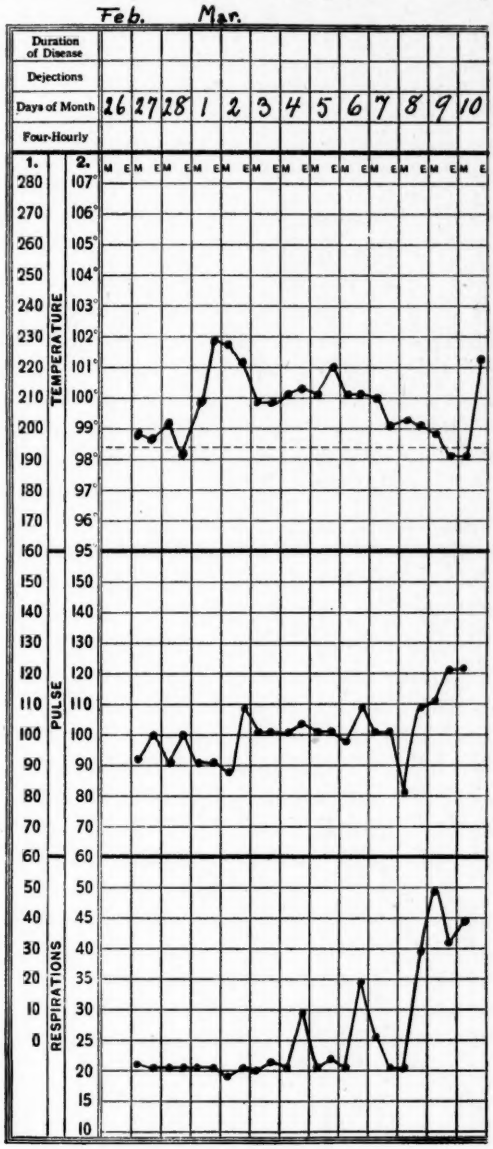
His family history is not important. He had gonorrhea twice thirty years before admission. He drank four or five glasses of beer or whiskey a day, but "never drank to excess". He denied syphilis.

Clinical examination showed a well nourished, dark skinned man. Apex impulse of the heart not seen or felt. Left border of dullness in the fifth space 14 centimeters from midsternum, just outside the nipple line. Right border 3 centimeters to the right. Rhythm regular. Sounds rather faint. Second sounds equal and faint. A slight systolic murmur at the apex. Pulses equal, synchronous, regular, of normal volume and slightly increased tension. Artery walls palpable. Systolic blood pressure 137. Chest barrel shaped. Lungs hyperresonant. Slight dullness at the left base behind, with diminished breathing and many fine moist râles. At the right base a few moist râles on deep inspiration. Occasional scattered coarse râles in both backs. Slight shifting dullness in the flanks. Liver dullness from the seventh rib to 3 centimeters below the costal margin. Edge not felt. Genitals, extremities, pupils, knee-jerks and plantar reflexes normal.

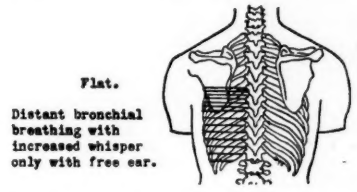
Amount of urine 14 to 79 ounces, specific gravity 1.005 to 1.006, cloudy at all of three examinations, a slight trace to a very slight trace of albumin at all, much pus in the sediment at all. (No catheter specimen.) Blood: 9,400 to 28,500 leukocytes, hemoglobin 90 per cent., smear normal. Stool negative.

Temperature, pulse and respirations as shown in the chart.

The day after admission the visiting physician found the first sound valvular and the post-diastolic pause shortened. March 1 the sputum became bloody, the temperature, pulse and respira-



tions rose, and the patient had pain in the right side of the chest. That night there was diminished breathing in the region of the left scapula. The following day the lung signs were as shown in the diagram. The general condition was fair.



March 4 he began to complain of pain in the right calf. The following day the circumference of the leg was three centimeters more than that of the left. An ice bag relieved the pain. The signs in the lungs were now very slight.

March 7 the left back was tapped and markedly turbid straw colored fluid withdrawn. 95 per cent. of the cells were mononuclears, about two-thirds of them large (endothelial), and there were a few polynuclears. A culture showed no growth. The following morning the temperature was a little lower and the patient felt better. March 10 the right back was full of consonating râles with bronchovesicular breathing, dullness and increased voice. The left back was still dull at the base; the only bronchial breathing was in a small patch near the scapular angle. There was a good deal of bloody sputum. The condition gradually grew worse. The patient complained of considerable pain in the chest, especially on cough. March 11 the temperature rose again. The pulse was of poor quality. The physical signs did not change. That day the patient died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

I am interested here, as I always am, in the sequence of events. The dyspnea was first, the edema last. The dyspnea has been going on for five months, the edema only for three weeks. Dyspnea first and edema last is the regular sequence in cases of cardiac failure. I begin to suspect that we are dealing with a case of heart disease. Of course the possibility of kidney disease must be kept in mind, or of some cause of edema that would produce dyspnea or local pressure in the chest. But leaning as we always must on the doctrine of chances we have to say the commonest of all diseases now is heart disease and the commonest of all causes of dyspnea is heart disease. So we have a hunch that that is what it may be.

One might say there is an alcoholic history. Is that going to be important? If this is what I have guessed it to be, that is heart disease, I do not believe it is. I see no definite relation between alcoholic history and heart disease. The past and family history seem irrelevant.

NOTES ON THE PHYSICAL EXAMINATION

We stop over the word "dark skinned". In many cases the fact that we did not has made us miss a diagnosis of Addison's disease. I do not mean to say this is going to be a case of Addison's disease. It is said he is an American, but American covers a great variety of races. He might be dark skinned because of exposure to the weather. But we have to keep this possibility of Addison's disease in mind.

"Apex impulse of the heart not seen or felt." Is that important? No, not at his age. At his age it is common owing to the flaring out of the chest walls to see and feel no impulse. So I draw no conclusion from that.

"Right border three centimeters to the right." Insofar as we can trust cardiac percussion, which I do not trust at all, that means an enlarged heart. It is quite possible that there is an enlarged heart.

"A slight systolic murmur at the apex," as there is in almost every sick man's heart. I draw no conclusions from that.

The fact that they do not give the diastolic blood pressure shows how long ago this record was made.

What tentative conclusion should be in our minds about his chest? The first thing is emphysema—barrel chest, hyperresonance, râles. One of the things I have learned is that these signs generally do not mean emphysema. In my textbook on physical diagnosis I said for a good many years that it did. Most people still say that it does. It may be, but the chances are it does not. If not, what is it? It is that change in the chest which almost every elderly person has, barrel chest. So I am perfectly neutral on the question of empyhsema.

If that record of shifting dullness is correct he has ascites—part of his dropsy, presumably.

My experience shows that if you do not feel the edge of the liver you can never be sure it is enlarged. I am neutral about the liver.

The surprising thing is that there was no edema of the legs. I expected there would be.

That is from one quarter the normal amount of urine to twice the normal amount.

We begin to suspect that the specific gravity is fixed, that the kidney cannot concentrate urine. We have no proof of that. We have only three examinations. But I begin to think more of disease of the kidney than I did in the beginning. As to the urine, so far as given, it raises a strong suspicion of chronic nephritis, but that is all. Pus is so common in the urine that I can draw no conclusions from it.

We see from the chart that after the first two days he ran a moderate fever until just at the end of life, and that his pulse was ascending on the whole, most of the time above one hundred. His respirations did not ascend until the end. I am expecting some infection in addition to whatever disease of the heart or kidney we may find.

"The day after admission the visiting physician found the first sound valvular and the post-diastolic pause shortened." Ordinarily we hear tic-tac, tic-tac, tic-tac. With shortened diastolic pause we hear tic-tac-tic-tac-tic-tac-tic-tac, with no considerable interval between the two pairs of sounds. It is heard with no particular disease of the heart, but with any failing heart. I have often heard it in pneumonia, and sometimes in Addison's disease, to bring up that possibility once more.

"March 1 the sputum became bloody, the temperature, pulse and respiration rose, and the patient had pain in the right side of the chest." That spells pneumonia to most of us. But we must consider another possibility. Might it not be an infarct of the lung? He possibly has pas-

sive congestion with rupture of the blood vessels. That would give us temperature, pain and bloody sputum. I am considering both pneumonia and pulmonary infarct.

I cannot without more evidence decide about these chest signs. They may be the signs of fluid or solid. We know nothing about the tactile fremitus. I have to remain neutral here.

When we have what looks like a cardiac case and what may be pulmonary infarction we wonder if similar infarctions are not going on in other parts of the body and whether he is getting an embolus in the calf. I think he has a thrombus in that leg, and that helps me to believe that that was an infarct rather than a pneumonia in the lung.

In my experience there is no use counting the cells in these fluids. It does not help you. If it tells you anything it tells you that the fluid has been there some time.

DIFFERENTIAL DIAGNOSIS

In the first place let us deal with the question of Addison's disease. What have we to make us think he has Addison's diease? One thing and one thing only, that is dark skin. I do not think that is enough. His blood pressure is not low. He has had no characteristic gastric symptoms or tendencies to faint. We cannot look in his mouth for confirmation by those dark pigmentations which are much more important in Addison's disease than pigmentation of the skin. We have no evidence of tuberculosis anywhere in the body, and Addison's disease is usually a tuberculosis of the adrenal gland. On the other hand we have a good deal pointing elsewhere. I think it is wise for us to say no. Dr. Mallory will not say tubercuolsis of the adrenals, or Addison's disease, when he comes to reveal the facts of this case.

We have to explain the main symptoms which occurred before he came to the hospital. There certainly seem to be two acts to this drama, that which went on for five months and that which went on after he came to the hospital, the last being the chest signs and the spitting of blood, etc. What happened before he came to the hospital? On the part of the heart, although the evidence is not very good, it seems to point to enlargement. That would go with kidney disease as well as primary heart disease. There is a good deal of evidence of passive congestion both in the chest and in the abdomen. He never had anything to suggest uremia. His nervous system has remained perfectly unchanged. His period of illness has been quite short—five months. Does that help us? I do not think that it does. Chronic heart or kidney disease often comes to the surface just a few months before death. We should like to know more about that urine; the sediment. We should like to know more about the function of the kidney, and we should like to know something about the retained products in the blood. It shows on how insufficient evidence we had to act in those days as compared to what we may have at the best today.

If it is heart trouble, what kind of heart trouble is it? There is no reason to suspect valvular disease. The systolic murmur we get with any kind or no kind of heart disease. If it is heart trouble it is the type which we now believe to be ten times as common as any other,—hypertensive heart disease. The rheumatic, syphilitic and coronary forms of heart disease are falling into the background as compared to that. But this man has not got hypertension. Does that prove he has not hypertensive heart disease? No. He may have had hypertension over a period of months or years and then got rid of it. I do not know that he has not got hypertensive heart disease. If he has that, what shall we find post mortem? Hypertrophy and dilatation. If he has kidney disease, what will show in the heart? Very probably a hypertrophied and dilated heart. So even in the end we may not be able to be sure. Most of us believe today that in this combination of cardiovascular-renal disease the sequence of events is something like this: (1) A physical or chemical cause producing hypertension, (2) hypertrophy of the heart, (3) arteriosclerosis—sometimes in the kidney, therefore nephritis; perhaps in the coronary vessels, therefore angina, or perhaps failure of the heart without any noticeable arteriosclerosis anywhere, so-called essential hypertension. He might perfectly well have arteriosclerosis at fifty-three. His arteries are thickened at the wrist. That does not prove that they are thickened inside the body.

What about his kidneys? I cannot decide. If we had it to-day we could, especially with the test of giving him water to drink and then watching him through the night, to see if the specific gravity of his urine did not vary, as that of an ordinary person does. That was not done here. He had only three tests. If the gravity is not fixed the albumin could come perfectly well from passive congestion as a result of heart disease. I cannot say whether this is kidney disease or not. It may be all heart disease without any kidney.

What about his chest? I think he had infarcts. Did he have lobar pneumonia? No, I believe not. Did he have one of those low-grade pneumonias which the pathologist uses all sorts of queer terms about, as if it were half way between passive congestion and pneumonia? Perhaps. We need to suppose nothing but infarcts and passive congestion of the lung, passive congestion of the other organs, the nutmeg liver, and ascites. The kidneys may show chronic nephritis. I cannot decide. My slight preference is to say that they do not. They will share in the general arteriosclerosis perhaps, but not show more.

Why did he have a leukocytosis? Why did he have so much fever? I believe they may come from infarcts alone. This is just the sort of case

that often ends with acute pericarditis in which we have no physical signs.

A PHYSICIAN: How do you explain that sudden pain in the calf?

DR. CABOT: I suppose that thrombi formed in the calf owing to poor circulation.

A PHYSICIAN: Would not the amount of urine with the low specific gravity indicate a nephritis?

DR. CABOT: It certainly tends to. It is not merely the low gravity, but, as you say, the combination with albuminuria. That is a good point. I think it strengthens the evidence for a chronic nephritis.

A PHYSICIAN: If he had fluid in the abdomen and little elsewhere, is that not unusual in heart disease?

DR. CABOT: I should not say it is any more unusual in the edema of heart disease than in the edema of chronic nephritis. If it had been in his face I should be inclined to nephritis. In the abdomen, without the legs, edema is not characteristic of either heart or kidney.

A PHYSICIAN: Is portal stasis suggested by edema of the abdomen?

DR. CABOT: Would you like to suggest that he has cirrhosis of the liver? He has an alcoholic history. Why should he not have cirrhosis of the liver? I do not see any reason why he should not have it. But I do not see why he died I never saw a death from cirrhosis of the liver with these symptoms. He has never been tapped. I think your point is a perfectly good one. But I do not believe he died of it.

DR. B. FRIED: How do you explain the loss of weight, twenty-five pounds?

DR. CABOT: I know nothing about that.

DR. FRIED: In the presence of ascites you would expect a gain in weight, wouldn't you?

DR. CABOT: Yes.

DR. FRIED: Is it possible he has a malignant disease somewhere, perhaps in the lungs, which might give him the ascites, pain in the legs, with metastases in the liver and so on?

DR. CABOT: That is a good suggestion. Where will you put the primary tumor?

DR. FRIED: In the lungs.

DR. CABOT: I see. He spits blood because he has cancer of the lung. These physical signs are due to cancer of the lung. Why did he die?

DR. FRIED: He died of cachexia.

DR. CABOT: Is the picture that of a man with cachexia? He is very well nourished. Don't they usually have more local pressure symptoms than he had here? I should say, as far as I know, that they usually show more local pressure symptoms in the lungs when they die of cachexia. We did not find that in this man.

I am betting against cirrhosis of the liver as of any importance in this case, and I am betting against cancer of the lung, although I think they are both good suggestions.

A PHYSICIAN: I think he died of a terminal infection, although he had cirrhosis.

DR. CABOT: Where is the infection?

A PHYSICIAN: Probably in the lungs.

DR. CABOT: Pneumonia?

A PHYSICIAN: Yes.

DR. ROBERT SLATER: Would you have pulsus alternans with a pericarditis?

DR. CABOT: I do not remember seeing it. It is not characteristic of any one disease. The myocardium degenerates with various diseases. We have not, as far as I remember, any evidence of pulsus alternans here.

A PHYSICIAN: It strikes me that this man is rather young to have hypertensive heart disease. I think it might be in the rheumatic group, and it might be a case of subacute bacterial endocarditis. That would explain the fever, the leukocytosis, and so forth.

DR. CABOT: You are perfectly right. Most people dying of hypertensive heart trouble usually die at a later period. Subacute bacterial endocarditis would account for the leukocytosis and fever. But then I think the patient should show evidence of fever for a longer period. We call the disease subacute, but it is often chronic. Bacterial endocarditis usually runs for a much longer period than this patient suffered. He has some emboli. Very possibly that might go with bacterial endocarditis. On the whole I am voting against it though.

I will commit myself once more. I do not believe it is cancer of the lung. I do not believe it is cirrhosis of the liver or subacute bacterial endocarditis. I do not know whether it is heart disease, kidney disease, or both. But I am inclined, with the suggestion that one of you gentleman made, to say there is nephritis. Yes, I think this man has chronic nephritis with a hypertrophied and dilated heart, with dropsy secondary to that. If he had cirrhosis it did not amount to enough to cause his death. As to terminal infection, I do not know what it is. I am rather inclined to think he did not have any.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Cardiorenal disease.
Pneumonia.
Thrombosed leg vein.

DR. RICHARD C. CABOT'S DIAGNOSIS

Probably chronic nephritis with hypertrophy and dilatation of the heart.
Ascites.

ANATOMIC DIAGNOSES

1. *Primary fatal lesions.*

Fibrous myocarditis.
Thrombi in the ventricles and auricles of the heart.

2. *Secondary or terminal lesions.*

Pulmonary embolism and thrombosis.
Hypertrophy and dilatation of the heart.
Chronic passive congestion, general.

Infarcts of the lungs.
Cystitis, pyelitis and ureteritis.
Slight fatty metamorphosis of the liver.

3. *Historical landmarks.*

Chronic pleuritis.
Slightly defective closure of the foramen ovale.
Hyperplasia of the medulla of the kidneys.
Infarcts of the kidneys.
Slight chronic interstitial nephritis.
Papillary adenomata of the kidneys.
Tenia.
Concretions in the kidney.

DR. TRACY B. MALLORY: The pigmentation of the skin mentioned in the case is explained by the fact that the man was a mulatto.

The heart was considerably enlarged, weighing 665 grams.

A PHYSICIAN: What would be the normal weight of the heart for this man?

DR. MALLORY: About 350 to 375 I should judge. All the cavities were dilated. The important finding was a very large area of necrosis, in part fairly fresh, in part healed fibrous tissue, occupying most of the inferior portion of the interventricular septum and some of the lateral wall of the left ventricle. Thrombi had formed on the endocardial surfaces, both in the right and in the left ventricle. These had led to numerous infarcts in the lung, including a terminal pulmonary embolus which was sufficient to obstruct both branches of the pulmonary artery. I presume that the lesion in the leg was also an embolus from the thrombi in the left ventricle, but the leg was not dissected, so we have no proof of that.

The difficulty comes in explaining this area of fibrosis, which, as described, seems like a typical cardiac infarct. The coronary arteries showed almost no traces of atheroma, and no thrombi were found. I know from bitter experience that thrombi in the coronary arteries are often missed by the pathologist. It is possible that that may have been the case here. The only other reasonable hypothesis seems to be that the lesion might have been a gumma. Syphilitic lesions of this size in the heart are, however, extremely rare, and no other evidence of syphilis was found anywhere else in the body. On the whole I am inclined to believe it was not that.

The kidneys were very unusual in their microscopic structure. The condition was apparently a congenital abnormality in which the calices were extremely long and extended up into areas of the cortex where they do not ordinarily reach. There were corresponding changes in the arrangement of the various tubular structures, but numerous small irrregular scattered areas showing foci of lymphocytic infiltration were found suggesting old healed infarctions. There was a very little arteriosclerosis in the kidneys and no lesions of the glomeruli that definitely could be called nephritis.

So that the immediate cause of death seems to have been a pulmonary embolus, and the most important lesion, at the base of everything, this area of infarction of the heart with the subsequent thrombus formation. There was no evidence of any terminal infection.

DR. CABOT: Were the lesions in the kidney enough to interfere with its function much, or do you think it was a pretty good functioning kidney?

DR. MALLORY: I have never seen an anomalous kidney of this type before. I do not know whether it is characteristic of them to show any decreased function or not.

DR. CABOT: Was the liver all right?

DR. MALLORY: It showed chronic passive congestion, nothing else.

CASE 14062

AN ABDOMINAL CASE WITH UNFORTUNATE COMPLICATIONS

SURGICAL DPARTMENT

A married Canadian woman fifty-seven years old entered the hospital November 15 complaining of a "growth in her side."

For six years she had had increasing discomfort in the lower left side and a dull constant ache in the lower left abdomen occasionally radiating to the left shoulder and aggravated by lying on the left side, standing and walking. Two years before admission she had diarrhea for two weeks. During the past summer she passed small clots of blood in stools several times. For eight weeks there had been no blood in the stools and her bowels, previously regular with an occasional cathartic, had not moved without enemas, which gave her much pain. During the past five weeks the pain had been much worse, her appetite had been poor and she thought she had lost five or six pounds.

For two years beginning nine years before admission she had continual flowing and pain in the pelvic region. She had a curettage done. Two months after her discharge from the hospital the flowing recurred, with pain and leukorrhea. Six years before admission her uterus, tubes and one ovary were removed. She had slight dyspnea on exertion and edema of the ankles at night, disappearing by morning. For several years she had urinated twice at night and for several months every hour by day.

Her mother died of diabetes and Bright's disease, her father of carcinoma of the bladder.

Clinical examination showed an obese, short-necked woman. Breath sounds faint. Fine moist inspiratory râles at the right apex in front and over the whole of both lungs posteriorly. Abdomen: midline suprapubic operative scar, thick panniculus, general hyperesthesia on the left side, the slightest pressure causing pain. Very

marked voluntary spasm. No masses made out. Pelvic examination showed a bilateral tear of the cervix, some tenderness in the left vault. Rectal examination, extremities, pupils and reflexes normal.

Before operation chart not remarkable. Amount and specific gravity of urine not recorded, findings negative except for occasional leukocytes in the sediment of both of two specimens and rare red blood cells in one. (No catheter specimen.) Blood before operation: 4,000 leukocytes, 44 per cent. polynuclears, 56 per cent. lymphocytes, the majority mature, hemoglobin 80 per cent., reds 5,200,000, marked anisocytosis. Smear showed leukopenia also. Stool, guaiac positive. Wassermann negative.

A barium enema passed to the midportion of the sigmoid, where it apparently met with obstruction. At this point the patient expelled the enema and the degree of obstruction could not be definitely determined. The lesion was poorly shown. The diaphragm was high on both sides, rather sharply domed on the right. Its outline was distinct. The costophrenic sinus was not obliterated. The lung fields were clear. There were no mediastinal masses.

November 22 operation was done, and November 30 a second operation. After the second the pulse was thready and rapid and she looked ill. December 3 and 4 she had chills with a temperature of 101°. December 7 500 cubic centimeters of blood was transfused, and December 8 600 cubic centimeters. December 13 the temperature was 103°. December 14 the condition was worse. There was marked phlebitis of the left leg. The temperature was 103.8°. That day she died.

Discussion

BY LINCOLN DAVIS, M.D.

The way is not easy for the surgical transgressor in this hospital. Every surgical failure is revealed first at the surgical staff meeting, and then if there happens to be a post-mortem we are summoned here to explain. This case is a painful one to me.

The description of discomfort and pain in the left side in this case is unusual. It would not indicate a growth. If it were on the right side we should be suspicious of something the matter with the gall-bladder.

The story of blood in the stools of a woman of fifty-seven, constipation, pain on taking an enema, and loss of weight is all suggestive of a growth in the bowel. But the duration of symptoms for six years is misleading. She certainly had not had a growth in the bowel for six years. The record does not state what the condition was at the time of the operation six years ago. Rectal examination was negative.

Here was a case in which the clinical diagnosis was fairly clear. The X-ray confirmed it.

INTERPRETATION OF X-RAY

The findings are probably due to carcinoma of the sigmoid.

PRE-OPERATIVE DIAGNOSIS NOVEMBER 22

Carcinoma of the sigmoid.

FIRST OPERATION

Gas-ether. Median suprapubic incision. A scirrhous growth of the lower sigmoid was found with a few large hard glands in the mesentery. The liver was normal to palpation. About six inches of intestine including the growth was removed with a V-shaped piece of mesentery including the enlarged glands. A lateral anastomosis was then done with some difficulty. Clamps could not be used. An incision was made in the right iliac fossa and a catheter inserted into the cecum by the Witzel method. The median wound was closed without drainage.

PATHOLOGICAL REPORT

A section of large intestine 12.5 centimeters long with the adjacent mesentery. Midway between the cut ends there is an annular flat superficially ulcerated growth measuring 3.5 centimeters in length. There are no enlarged lymph nodes in the attached mesentery.

Microscopic examination of the growth shows a structure of irregular gland tubules lined by atypical columnar epithelial cells which invade the muscular coats. One small mesenteric lymph node is negative. Adenocarcinoma.

Further Discussion

This seemed to be a very favorable growth for resection. It was scirrhous; it was perfectly movable. It was however rather low, so that it was difficult to manipulate it outside the abdomen. The anastomosis was made with some difficulty, and instead of being the usual lateral anastomosis where the bowels are united as in Figure 1, in this case the bowels were united as in Figure 2. That is not the best way to do it; but strangely enough it was impossible to bring the segments together in the usual way on ac-

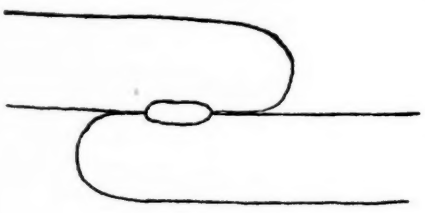


FIGURE 1

count of the pull of the mesentery, which was very short. Often a union in this way is perfectly satisfactory, but in this case it proved

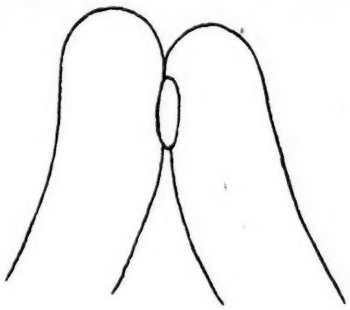


FIGURE 2

to be deficient. The report of the operation states that there were enlarged glands. That is not borne out by the pathologist's report. It was a very favorable case for excision. The cecostomy was done to prevent tension on the anastomosis. It worked well.

She did not do well after operation. The abdomen became distended in spite of the cecostomy, and she vomited from time to time. Gradually her pulse and temperature went up and the peristalsis which was present at first was absent. At the end of eight days it was evident that she had peritonitis. She was very tender in her left flank.

SECOND OPERATION

Under novacain anesthesia in the ward an incision was made in the left flank and the peritoneal cavity opened with the escape of a moderate amount of thick foul smelling fluid. The intestines were found matted together with a heavy fibrinous exudate. A tube was inserted into the flank.

FURTHER DISCUSSION

She drained an enormous amount of foul fluid from this wound. The distention diminished somewhat, and we thought she was a little better. On the night of December 13 there was profuse bleeding from the cecostomy. She failed very rapidly after this.

This case does not present much of a problem in diagnosis. The diagnosis of carcinoma of the sigmoid was quite plain. Also it was evident that there was peritonitis following operation. One problem was the profuse bleeding from the cecostomy. I could not account for that at the time. I think the post mortem report will explain it.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of sigmoid.
Partial intestinal obstruction.

ANATOMIC DIAGNOSES

1. *Primary fatal lesion.*

   (Carcinoma of the sigmoid.)

2. *Secondary or terminal lesions.*

   Sigmoidectomy.
   Colostomy.
   General peritonitis.
   Infarction of the ileum?

3. *Historical landmarks.*

   Chronic cystitis.
   Chronic pyelitis.

DR. TRACY B. MALLORY: The necropsy showed a terminal peritonitis with comparatively little free fluid but many pockets of fibrinopurulent exudate, especially in the left lower quadrant, where the lateral anastomosis had broken apart and was the direct cause of the peritonitis. The lower portion of the ileum and part of the large intestine showed a hemorrhagic infarction, and the mesenteric vein showed a fresh thrombosis. So that that undoubtedly is the source of the hemorrhage.

DR. CABOT: Can you say anything as to the source of the thrombosis?

DR. MALLORY: It is probably secondary to the peritonitis.

DR. DAVIS: This was a case of technical failure,—the failure to get a tight union of the bowel.

DR. J. B. AYER: What kind of suture do you use now?

DR. DAVIS: We use chromic catgut. But the trouble here was that there was a little tension, and a little tension will make the sutures cut out; and if one suture cuts out with a little sepsis the whole thing will go. Probably if we had inserted a drain on that side it might have prevented peritonitis. If one drains an intestinal suture it is almost sure to leak. If one does not drain and it does leak we get peritonitis. We usually wrap omentum around the suture line and leave it, and that is what we did in this case, but it was not enough.

METHODS OF USING OUR CASE RECORDS IN THE REGULAR MEETINGS OF MEDICAL GROUPS IN ARIZONA AND MASSACHUSETTS

I

Two of the many methods of using the Case Records have proved so successful that they deserve to be better known. One has been developed by the staff of the Newton Hospital, Newton, Massachusetts, the other by the Yavapai County Medical Society, Arizona. Both are products of a number of years of evolution. Both owe much to the experimental method. True offspring of progressive science, they have both proved

their adaptation to life by maintaining a notable degree of enthusiasm in the meetings through an unusual number of years. The Westerners have with great ingenuity developed a teamplay method which has the zest of a game,—all the stimulus of competition with the minimum of its disadvantages. For the benefit of the many other groups in which the Case Records are used, from handfuls of students in their rooms to formal meetings of hospital staffs and medical societies, we report these two methods. Whatever is lasting, like whatever is popular is worthy of attention.

"Several years ago," writes Dr. George L. West of Newton, "I subscribed to the Cases, before their appearance in *The Boston Medical and Surgical Journal*. I soon became impressed with the practicability of using the cases in a clinical club. I then asked a few members of the staff to fit into the discussion.

"It has now become my practice to select such cases as lend themselves intrinsically to discussion and argument. There are generally two for each meeting. No member knows the date of the original issue of the cases except myself. The stenographer sends a multigraphed copy of the case minus the discussion and the post-mortem findings to the members several days in advance of the meeting. Two members are named as principals. Each principal presents his case as he pleases and defends himself in his discussion against the questions and objections which arise plentifully as he proceeds. He then makes his diagnosis and the other members criticize, and finally each man registers his opinion as to diagnosis. I then read to the club your discussion and diagnosis and the necropsy findings, which are then for the first time made known to the members.

"You will see that the club has had a continuous existence for several years. It now has a membership of thirty men and an average attendance of about twenty at its bimonthly meetings at the hospital.

"I modestly believe that the benefit from this particular method of study has been of positive effect in elevating the standard of medical practice at the hospital and in the city.

"It is a tribute to your development of the case method that a clinical club such as I have described can carry on with so much enthusiastic interest and benefit."

II

The western society has worked out a rather elaborate team system, described by Dr. C. E. Yount and Dr. Gale D. Allee in an article in *Southwestern Medicine*.* By permission we publish extracts from this report of a most original and picturesque plan of work, full of the spirit of youth, its comradery, its love of a game. In its earliest form it was started after nine years of experiment with various other plans of work. At the end of the first year the society felt that it had gained "more real benefit and more stimulus to better work from the systematic study of the Cabot Clinics than from any other method we have ever pursued." At the end of five more years there is still the vigorous growth of youth. The experience of the society has shown increased interest and harder study every year.

"In 1921 the members of the Yavapai County Medical Society residing in Prescott, in conjunction with the Medical Officers on duty in the U. S. V. B. Hospital at Fort Whipple determined to institute a course of post graduate study.

"After discussing various plans, it was decided to use the Case Records of the Massachusetts General Hospital. . . . Time has proved that our selection of the Cabot case histories was a wise choice. There is no other system of case records published which can be so readily adjusted to the plan of study which we have developed.

"During the past six years many schemes for presenting the Cabot cases have been tried out in an effort to improve our method and make our study more interesting. The changes which have resulted in an improved plan have been retained, the others dropped, and while we may not have attained standardization, we trust that we are rapidly approaching it. Certainly each year has shown increased interest and closer study on the part of the participants. The method used during the past year is the fruit of mature experience and the end result of six years of evolution.

"At the beginning of the year all the doctors in the Yavapai County Medical Society and at Whipple are divided into three groups balanced as equally as possible as to the professional attainments, specialties and ability to 'talk on their feet'. Each group elects a leader or team captain. . . . At the remaining nine meetings two of the three groups, in rotation, meet each other in competition in the presentation of Cabot case histories, until each group has discussed six cases. The two competing groups are each given a case history, the two being as nearly equal in difficulty of solution as possible. The competitors are graded on the skill with which the case is presented and the accuracy of their diagnosis as compared with Dr. Cabot's and the necropsy findings.

"Each group is allowed thirty minutes, neither more nor less, for the discussion of the case assigned by the judges. The captain of each group decides as to how the case shall be presented by his group and who shall speak for his group. The only restriction placed upon him is that his group may not exceed thirty minutes and he must call upon each of his various group members an equal number of times in the year. After a group has concluded its discussion, one of the judges reads the discussion of Dr. Cabot and the report of the necropsy findings, after

*Vol. XI, page 431, October, 1927.

which the judges retire and prepare their rating of the group. The judges, three in number, are chosen at the beginning of the course and serve for one year.

"The grades given by the judges at each meeting are placed in a sealed envelope, which is then given into the custody of the secretary, who retains them until the end of the year, when they are all delivered to the judges, who determine the winning group. . . . The judges are also custodians of the *Boston Medical Journal* as it is received through the mail, and are charged with the duty of selecting the cases for discussion, having them mimeographed and distributed to members two weeks in advance of the meeting.

"Immediately after the close of the course of study an annual banquet is held at which, it is needless to add, the attendance is 100 per cent. After dinner each group captain is requested to tell how and why his group won. Then the Chairman of the board of judges announces the winning group. The two losing groups pay for the dinner. The winning group is, therefore, the guest of the two good losers. This year the winning group won by 11/100 of one per cent. and the lowest group was within one and one-half per cent. of the winner.

RESULTS

(1) This year we had an average of twenty-one doctors at each meeting, or a general average of 99.5 per cent. attendance for the three groups for the series of winter meetings. We mention with considerable pride this remarkable percentage for attendance and present it as evidence that we have developed an interesting plan for post graduate work.

(2) Men who at the beginning of the course could not get up on their feet and talk because of stage fright are now consuming the full time alotted to them, discussing their cases with zeal and enthusiasm.

(3) The division of the doctors into well balanced groups and placing these groups in competition with each other is believed to be an important feature of the scheme for study which we have developed, because it promotes fellowship and good feeling, a wonderful degree of coöperation, and stimulates each individual in the group to engage in close study in order that he may carry his share of the group burden.

(4) Last, but most important of all, this course of study has taught us carefully to evaluate and draw logical deductions from the data available, and we are confident that this training has made better doctors of all of us.

CONCLUSION

". . . For nine evenings each winter since 1921 we have, figuratively speaking, transported Dr. Richard C. Cabot and his colleagues from the Massachusetts General Hospital, Boston, to Prescott, Arizona, at no greater cost than a subscription to the published Cabot Clinics, or the *Boston Medical and Surgical Journal*, plus the effort necessary to operate the plan just described. The effort would have been abortive years ago were it not for the fact that we have at Fort Whipple and in our County Society doctors with a genuine thirst for medical knowledge, a determination 'to know what others have known' and what others know, coupled with a will to do and an inherent compatibility which enables us to work together as a guild."

Southwestern Medicine announces that reports of these case discussions of the Yavapai County Medical Society are to be made a regular feature of that journal, commends the method to all county societies, and adds, "Such a type of meeting will be far more helpful in the development of diagnostic ability, clinical analysis, and management of patients than listening to any number of papers, no matter how eminent the authors may be."

The lasting good results of both these methods of using the Case Records are obviously due to the progressive mental attitude of the men who have developed them. Each plan has its advantages. The Massachusetts method gives every man an opportunity to enter into the discussion at each meeting, and each one must take his turn in rotation as principal. Only one judge is cut off from the advantages of study and discussion of cases, instead of three as in Arizona. The more informal discussion often leads to valuable side issues, and is carried on with the greatest ardor. In Arizona esprit de corps maintains the standard of the group, and the year's work is a year's game. We present these two plans as full of suggestions for committees harassed with the problems of languishing societies or unproductive staff meetings.

ANOTHER VITAMIN

Dr. Herbert M. Evans of the Department of Anatomy of the University of California is reported to have claimed that he has discovered a vitamin to which he has applied the designation F.

According to the views of Dr. Evans this vitamin is essential for the normal growth of animals and especially for the development of sexual faculties. Three years' work with rats and guinea pigs were presented in this study.

Dr. George C. Burr now with the University of Minnesota was associated with Dr. Evans in this study.

Further studies are in progress with the purpose of ascertaining what foods will provide vitamin F.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the following-named committee:

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Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 126 Massachusetts Avenue.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 126 Massachusetts Avenue, Boston, Mass.

NOTHING TOO MUCH

ALTHOUGH the increasing mortality from diabetes has been checked by insulin, the increasing incidence of the disease gives cause for alarm. Statistical accounts of the annual per capita consumption of sugar in the United States indicate that we are far ahead of other countries in this respect. Insurance companies have been pointing out that overweight and especially obesity are accompanied by decreased expectancy of life. For these and other reasons "your fat friend" has become a term of deep reprobation and especially among women has a svelt figure become one of the objects of existence.

The pursuit of this ideal is attended by a certain amount of risk and that the danger is real is held by Knopf[1]. His views, expressed last year[2] find confirmation in statistics recently collected. He finds that in young women between the age of 16 and 19 there is nearly twice as high a mortality from tuberculosis than among boys of the same age in New York. Figures from Wisconsin, Baltimore, and Cleveland indicate a similar situation in those communities. "In view of the claims that the general morbidity and mortality of tuberculosis have been decreased by more than 50% during the last thirty years, these comparative reports are depressing."

There are undoubtedly several factors at work. In some respects women's dress is more hygienic than it was thirty years ago, but chilling of the body from insufficient clothing cannot be avoided with the flimsy modern dress so popular with young women now. Some will make any sacrifice on the altar of a slender figure. Undernourishment and susceptibility to disease result. A tight brassiere that restricts respiration, high heeled shoes that make walking an exercise to be avoided and vigorous walking impossible, the "college slouch", excessive cigarette smoking, and insufficient sleep because of too much night life, assist in undermining resistance to disease.

It is probable that many years will pass before human tuberculosis disappears; perhaps it will not disappear until humanity itself passes off the scene, for it is upon hygiene and hygienic procedures that we have to depend after all.

The dangers to which Knopf calls attention are real. Statistics suggest their relative importance and it should be brought to the attention of all who have to do with the health and hygiene of young women that evidence is at hand to confirm the fears of some "old fogies" and give practical point to the injunction of "moderation in all things".

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FEDERAL HEALTH CORRELATION

AFTER several years of effort, attempts sponsored by physicians, sanitarians, and political scientists to bring about correlation of the scattered health work of our national government have at last met with partial success. On March 7, 1928, the House of Representatives passed without a record vote the well known Parker bill, H.R. 11026, for the coördination of federal health activities. In order to become a law, this excellent measure must be adopted in the Senate, where Senator Wesley L. Jones of Washington has introduced a similar bill, S. 3356, and it must be signed, or at least not vetoed, by the President.

The Jones-Parker bill deals almost entirely with the administrative organization of the United States Public Health Service. It does not call for large appropriations, and only a small annual increase of funds would be required to care for certain internal readjustments. The bill interferes in no way with State health work, there are no subsidies, and no extension of government activities. The measure would, however, make more effective the present

operations of our chief federal health agency, producing greater results for each dollar spent, and it is therefore of considerable significance to national vitality and ought to be enacted into law.

The chief provisions of the Jones-Parker bill are those for the detail of officers or employes of the Public Health Service to other bureaus, on request of the head of an executive department; detail of personnel to research and educational institutions; better facilities for the Hygienic Laboratory; a commissioned status for the sanitary engineers and other non-medical scientific personnel of the service; better adjustment of grades of medical and other commissioned officers; establishment of a nurse corps; and creation of a national advisory health council.

Indorsement for the principles of the Jones-Parker bill has come from the American Medical Association, New York Academy of Medicine, American Public Health Association, Conference of State Health Officers, U. S. Chamber of Commerce, and other bodies. It is the first measure providing for federal health correlation which has received unanimous support from the medical and public health professions. Physicians who are interested in progress in this important field would do well to communicate with their Senators and urge the adoption of the Jones bill, S. 3356, in the Senate.

HELP FIGHT CANCER IN MASSACHUSETTS, APRIL 23-27, 1928

PLANS are under way for a state-wide educational campaign looking toward a reduction in the deaths from cancer through early discovery of the disease. The campaign will be held during the week of April 23-27th under the joint auspices of the cancer committee of the Massachusetts Medical Society, of which Dr. Robert B. Greenough is Chairman; the Massachusetts Branch of the American Society for the Control of Cancer represented by Dr. Franklin G. Balch; and the State Department of Public Health represented by the Commissioner.

It is the aim of the joint committee to bring simultaneously before all citizens of the Commonwealth a few essential facts regarding signs of early cancer and pre-cancerous conditions in order that those who might otherwise become victims of the disease may act in time for the successful application of treatment. While an unfortunately large number of cases of cancer are in view of our present knowledge hopeless, it is well known that many others give promise of permanent cure if they can be brought to attention and effectively treated before they are too far advanced. The average delay at the present time between the discovery of the disease and the first visit of the patient to a physician is eight months. There is a still further delay of two months before effective treatment is applied. These ten months of delay must be appreciably shortened before progress can be made in the control of cancer.

The chief lines of activity which will be followed during the proposed campaign in each of the clinic cities are these:

1. An open meeting in which the medical profession and the public will unite.
2. A medical meeting with clinical session, if possible, arranged by the medical society and the local cancer committee.
3. Talks by physicians before organizations whose regular meetings fall between April 23-April 27th.
4. An approach to industrial groups by means of pay envelope inserts or articles in house organs and to householders by bill enclosures.
5. Newspaper publicity both before and after the occurrence of the various events.

This program in the cities participating has been arranged to date as follows:

Boston

On Monday, April 23rd, in Boston, the campaign will be opened by a mass meeting in Symphony Hall at which the Governor will speak, Cardinal O'Connell is expected also to be present. Other speakers will be Surgeon-General Hugh S. Cumming of the U. S. P. H. S., Dr. W. A. Evans, of Chicago, well-known writer on health subjects, and Dr. Richard Cabot.

The Boston City Club will devote a session to the subject of cancer.

The Chamber of Commerce has agreed to do the same, probably on Wednesday, April 25th.

Speakers will also be placed before many other organizations during the week.

Pondville

On Tuesday, April 24th, a clinical session for physicians will be held at the Pondville Hospital, with Dr. Joseph Colt Bloodgood as visiting consultant.

On Thursday, April 26th, at one o'clock, the regular clinic will be held.

On Friday, April 27th, the Hospital Visiting Committee is arranging an open house at the Hospital for friends in neighboring towns.

Springfield

On Monday, April 23rd, a public meeting will be held at which Dr. Ernest Amory Codman of Boston will be the principal speaker. On Friday, April 27th, a luncheon meeting will be held. Dr. Howard Canning Taylor will speak.

Worcester

On Tuesday, April 24th, in the evening, a mass meeting will be held at the Armory, with Dr. Bloodgood as the principal speaker.

A clinic is being arranged by the Worcester and the Worcester North district medical societies on the same afternoon, with Dr. Bloodgood as visiting consultant.

Lawrence

The education committee is organized and met on March 22, 1928, to make arrangements for the campaign. They are planning to have an opening meeting on Monday, April 23, followed by the opening of the clinic at the Lawrence General Hospital.

Lowell

On Monday, April 23rd, an opening meeting will be held in Liberty Hall.

On Wednesday, April 25th, a morning clinic for physicians will be held at the Lowell General Hospital with Dr. Francis Carter Wood as consultant.

Lynn

Lynn will unite with Boston in the opening meeting at Symphony Hall on April 23rd.

On Wednesday, April 25th, a luncheon meeting will be held with Dr. Francis Carter Wood as principal speaker.

Worcester North District

(Fitchburg, Leominster and Gardner)

On Tuesday, April 24th, the medical profession of the Worcester North District will unite with the Worcester District Medical Society at 4:30 in a clinical session at Worcester.

Other meetings will be arranged in this district.

On Wednesday, April 25th, a luncheon meeting will be held in Fitchburg, at which Dr. George H. Bigelow and other prominent men will speak.

Further information will be given from time to time. Suggestions will be welcomed by the committee regarding opportunities for the placing of speakers during the week of April 23rd, or for any other form of publicity.

All seats for the Symphony Hall meeting will be reserved, but free of charge. Application for these will now be filed in the order of their receipt, at the office of the Department of Public Health, Room 546, State House.

RED CROSS ANNUAL REPORT

The American National Red Cross, during the fiscal year ending June 30, 1927, administered relief in 77 disasters in the United States, besides which it rendered financial or other assistance in twenty disasters in our insular possessions and in foreign countries. This total does not include fourteen disasters of a comparatively minor character.

Before the Florida hurricane, floods in Kansas and Illinois required aid, and this was barely finished when at the end of March, refugees began coming out of the lowlands flooded by the Mississippi River. The Mississippi Valley Relief work was far from finished when the year covered by this report came to an end. For one month only, out of the twelve, was flood disaster absent during this year.

Within the year $8,216,893.31 was expended for disaster relief services alone—one half the total expenditures of the Society for all its services—local, national and international. In two disasters about 650,000 people were cared for, and as a result of the appeal to meet the suffering caused by the hurricane in southern Florida and the flood in the Mississippi River Valley, the people of this and other countries supplied the Red Cross with over twenty million dollars.

The enrollment of the American Junior Red Cross—The Red Cross in the schools—reached 5,822,757 in the year 1926-27, the adult membership remaining at a little over 3,000,000.

Every American should be proud of the services rendered by this organization and should consider it a privilege to rally to its support.

THE TRIP TO MINNEAPOLIS FOR THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION

In less than three months The American Medical Association meets in Minneapolis. It is hoped that many members from New England will attend the session. The opportunities to visit clinics in Minnesota as well as in the cities traversed on the trip are exceptional. The railroads offer rates of one fare and a half for the round trip, amounting to $76.35 from Boston. The lower berth Pullman charge is $12.75 each way.

Trains leaving Boston by way of the Boston and Albany Railroad at 3:15 in the afternoon or at 3 by way of the Fitchburg Railroad arrive in Chicago early the next afternoon. Trains leaving Chicago at about 6:30 P. M. reach Minneapolis at about 8:30 the next morning.

On the return trip one may leave Minneapolis about 8 P. M. and reach Chicago in ample time to catch the 10 A. M. train for Boston, arriving the next noon.

The railroads are willing to provide through sleeping cars from Boston to Minneapolis and return provided there is a demand for this service.

A group of twenty to twenty-five are necessary to secure a special car for the trip.

If those planning to attend the meeting wish to form a party or parties and go by special car will send their names to the Executive Secretary of the Massachusetts Medical Society at 126 Massachusetts Avenue, Boston, every attempt will be made to meet their wishes. This invitation applies not only to the Fellows of the Massachusetts Medical Society but to the Members of the Societies of all the New England States.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

BALFOUR, DONALD C. M.B., M.D. University of Toronto Faculty of Medicine, 1914. F.A.C.S. Head of Section in the Division of Surgery, Mayo Clinic; Chief of the Division of Surgery, The Mayo Foundation, and Professor of Surgery, The Mayo Foundation, Graduate School University of Minnesota, Rochester, Minnesota. His subject is: "The Evaluation of Present Methods of Treatment of Lesions of the Stomach and Duodenum". Page 273. Address: Mayo Clinic, Rochester, Minn.

MASON, ROBERT L. A.B., M.D. Harvard Medical School, 1922. Department of Surgery, Lahey Clinic. Address: 605 Commonwealth Avenue, Boston. Associated with him is:

HURXTHAL, LEWIS M. M.D. Harvard Medical School, 1923. Resident in Medicine, Massachusetts General Hospital, 1925-1926; In charge of Medicine at the Lahey Clinic. Address: 615 Commonwealth Avenue, Boston. Their subject is: "Femoral Embolectomy". Page 277.

KORB, CHARLES. M.D. Tufts Medical School, 1923. Fellow in Department of Pathology and Bacteriology, Rockefeller Institute for Medical Research July 1923-July 1924; Assistant in Department of Pathology and Bacteriology, Rockefeller Institute for Medical Research, July 1924-July 1925; House Physician, 1st Medical Service, Boston City Hospital, March 1926-November 1927. Address: 11 Morse Street, Boston. Associated with him is:

AYMAN, DAVID. A.B., M.D. Harvard Medical School, 1926. Assistant Resident Physician, Boston Sanatorium, 1926; House Physician, First Medical Service, Boston City Hospital. Address: Boston City Hospital, Boston. Their subject is: "Aortic Aneurysm Rupturing Into the Pulmonary Artery". Page 280.

MEIGS, JOE VINCENT. A.B., M.D. Harvard Medical School, 1919. F.A.C.S. Surgeon to Out-Patients, Massachusetts General Hospital; Assistant to Out-Patients, Collis P. Huntington Hospital; Surgeon, Pondville Hospital at Norfolk; Surgeon, Vincent Memorial Hospital; Surgeon to Out-Patients, Palmer Memorial Hospital. His subject is: "Dermoid Cysts Above and Below the Diaphragm of the Mouth". Page 282. Address: 286 Marlborough Street, Boston.

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HAMILTON, BURTON E. A.B., M.D. Harvard Medical School, 1910. Cardiologist, Boston Lying-In Hospital; Consultant, Cardiovascular Diseases at the Palmer Memorial, New England Deaconess and Robert E. Brigham Hospitals; Junior Visiting Physician, Boston City Hospital. His subject is: "Classification, Prognosis and Control of Patients with Heart Disorders in Pregnancy". Page 292. Address: 475 Commonwealth Avenue, Boston.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

Foster S. Kellogg, M.D., *Chairman* — Frederick L. Good, M.D., *Secretary*

Frederick J. Lynch, M.D., *Clerk*

The Importance of a Complete History in an Obstetrical Case.

Teachers of clinical medicine have urged over and over again the need of careful history taking while examining a patient. It would seem as if it were unnecessary to call the attention of the profession again to the great role that an accurate and precise history plays in the matter of making a good diagnosis. But every day experience teaches us that history taking is not a well developed art among the members of the medical profession. In the English Medical Schools and in some of the best Medical Schools in the United States, professors of clinical medicine are making earnest efforts in training the Medical student in the art of history taking. Medical history taking is an art that can only be acquired by diligent and persistent effort. The expert in history taking combines in his work the art of the diplomat, the subtle power of the lawyer who excels in cross examination and the patience of a saint. It is more than worth while to cultivate, as a physician should the gentle, patient and persistent in his cross examination. Already an objection is registered—it takes too much time. One of the most illustrious practitioners of internal medicine in the United States, a man who has been a prodigious worker, and has given to the profession a system of medicine said on one occasion, "I never examine more than four patients a day in my office," and his office hours were as long as the general run of his colleagues. From the earliest years of his practice, his well taken histories were among his best medical assets. We hazard the belief that in the past the general run of practitioners of obstetrics have not fully realized the importance of a well taken history. For some years prenatal care has been urged and all practitioners of obstetrics and the general practitioners doing obstetrics have given more or less prenatal care to the pregnant woman. We believe there are very few pregnant women who come under the care of a physician who do not have some pre-natal care. The prenatal care has been given to a greater extent among the primiparae than among the multiparae. It would seem to be taken for granted that if a woman went through her first and second pregnancies without difficulty, all future pregnancies would come to a successful

ending and an uneventful convalescence. Experience shows that histories of multiparae have not been exhaustive. A miscarriage after the first-birth has been forgotten by the patient, and the fact was not discovered by her physician when the patient came to engage him for her second pregnancy.

A miscarriage with a rise of temperature between the second and third pregnancies with pelvic involvement was not thought of sufficient importance by the patient to be remembered when she presented herself for examination for her third pregnancy, and her then attending physician did not elicit this information. Therefore an old inflammation of the tubes was not discovered until acute symptoms appeared post partum.

We take it for granted that scarlet fever and the other exanthemata of childhood are taken into consideration when histories are taken of the pregnant woman as well as the histories of all focal infections, tonsilitis and recent attacks of influenza. Recent studies have brought to the attention of some obstetricians that there do exist many cases of chronic pelvic inflammation associated with pregnancy which are quiescent during pregnancy and parturition which are likely to recur in the post partum period and which often terminate with disastrous results.

Of what avail, one might say, if the physician did know his patient carried the potentialities of puerperal sepsis? There is the advantage of knowing true conditions. There is also the advantage of knowing her sepsis came from within and not from without. It allows the practitioner to concentrate all his efforts in combating the disease at its source. It saves time and patience of the practitioner and it will fit him better temperamentally at least, to do his best for the patient.

We think that the past history of the pregnant woman should be thoroughly investigated. Every parturient woman should be thoroughly examined as to her past history. The amount of knowledge that will be had for the asking will astonish many practitioners. Such an examination will require tact, it will call for diplomacy, it takes on the part of the examiner, extreme patience.

The finesse of carrying out such an examination depends on the personality of the examiner. The average man can do it successfully if he is careful and cares to give the time. Giving his patient the best possible care obtainable will be the practitioner's satisfaction.

Questions of a similar nature to the above will be discussed in the JOURNAL each week. They may be addressed to the Clerk of the Committee, in care of the JOURNAL and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

BOSTON MEDICAL LIBRARY

PERIODIC HEALTH EXAMINATION

THE prolongation of human life has always intrigued mankind. The search by the Alchemists for the Philosopher's Stone had for its objective the same two disiderates that chiefly actuate men in this generation viz; transmutation of baser elements into gold and the springs of eternal life. The chief difference between our method of attack upon the problem and theirs, lies in the way we go about it. They hoped to achieve it by magic and we by the establishment of conditions favorable for its accomplishment. Both quests are in opposition to pretty well established laws of the moral and physical worlds. In the one case, that the love of wealth is the root of all evil and in the other to the fact that the increase of population (and with this is concerned prolongation of life) is conditioned upon physical and economic laws which may not be transgressed. If the biblical limit of three score years and ten for the average duration of a serviceable participation in mundane affairs as well as for a comfortable personal experience with life is approximately correct and Malthus and East are right in their theories as to the laws which govern the population the Earth may support, then our efforts to extend human life should be directed not to an actual increase in the "length of days", but to a diminution of the number of sick days in order that individual efficiency during the allotted period may be maintained at its maximum.

Periodic Health Examination is a live topic. Much has been written about it. It has great possibilities along certain lines, but it has in it something more worth while than the urge impelling Ponce de Leon to search for the Fountain of Youth.

During the week of March 26th some idea of the volume of literature on this subject may be had by consulting the exhibition in Holmes Hall.

Nicholas Culpepper 1616-1654.
William Salmon 1644-1713.

Quackery has always had a following. In England during the 17th century there lived two outstanding exponents of it and the Library has on its shelves several publications which created considerable stir at the time of their issuance from the press and aroused the ire of the organized medical societies in London where these two famous irregular practitioners resided and practiced. One of their works, that of Nicholas Culpepper, was the first medical book to be published in America which may account for the prevalance of charlatanism in this country, though it is more likely that practice of that sort thrives because it is what a certain portion of the public wants. Nicholas Culpepper (1616-1654) was the son of an English clergyman who seems to have been incensed that the medical profession of his day did not see fit to

play upon the credulity of the public by resort to the methods of a by-gone period. He was versed in astrological lore, had a good knowledge of Greek and Latin which he acquired at Oxford where he spent some time, and he had made himself familiar with the older medical writers, and finally had been apprenticed to a pharmacist. This smattering of knowledge in many lines coupled with a conscience which made it easy for him to fool the public and a shrewdness which pointed the ways in which this could readily be accomplished, brought him a large practice. Then, as now, one of the royal roads to success was to keep one's self in the public eye through the medium of the press and he became a prolific writer. He gained much notoriety by translating, in 1649, the Pharmocopeia of the College of Physicians with comments of his own. The publicity which he derived from the verbal castigation which the much incensed authorities of the College heaped upon him, as usual, served to advertise him the more. In 1653 he published a second book entitled the "English Physician, Enlarged with 369 medicines made of English herbs, etc". These two works had a very large sale. Five editions of this last book were published at that period and it was reissued as late as 1809. He translated "Galen's Art of Physic" and compiled from Arabic and Greek writings another book, published in 1651, called "Astronomical Judgement of Diseases" both of which the Library possesses. He gave gratuitous advice to the poor whenever called upon but in spite of his publications and his large practice, does not appear to have been financially very successful. He died at 38 of phthisis, leaving a number of unpublished manuscripts to his wife.

William Salmon (1644-1713)

Salmon appears to have been one of many irregulars, who, before there was any out-patient service in the London Hospitals, took their stand outside the entrance gate to St. Bartholomew's where they treated those who could not be admitted for one reason or another, sold them prescriptions as well as drugs, cast their horoscopes and otherwise plied the arts of the quack physician. It was claimed that he was trained by a fakir from whom he acquired his stock in trade. He had travelled quite widely, having been to New England. He wrote extensively, as did Culpepper, often dedicating his books to distinguished men of the time whose acquaintance he did not enjoy. The more noted of these works were: "Ars Anatomica", "Synopsis Medicinae, or a Compendium of Astrological, Galenical and Chemical Physick," and in 1710 a two volume folio, entitled "Botanologia: or the English Herbal", dedicated to Queen Anne. He accumulated quite a large library, possessed two microscopes and numerous curios which he picked up on his travels. He wrote on other subjects than medicine but did not fail to use these publications as a medium for the advertisement of his pills. The careers of these two charlatans would seem to indicate that in that day the public were "fair game" and that the arts of the unscrupulous practitioner of medicine were being practised as skillfully and shamelessly as they are today.

MISCELLANY

BOSTON HEALTH LEAGUE NEEDS $8,000

The Boston Health League comprising thirty-one agencies engaged in public health programs needs $8,000 to meet its budget. This organization is now in its eighth year and brings in contact public and private health bodies. The committee which endorses this appeal has nine members as follows: Howard Coonley, Paul E. Fitzpatrick, John S. Lawrence, Charles A. Pastene, James J. Phelan, A. C. Ratshesky, Felix Vorenberg, C. F. Weed and John Macomber.

THE ATTITUDE OF LOCAL HOSPITALS TOWARD COLORED PEOPLE

The recent controversy regarding the proposed new Plymouth Hospital brought out unqualified evidence of the fairness of local hospitals in accepting colored doctors and internes, according to Edward W. Wilson, Chairman of the Committee unfavorable to the Plymouth Hospital.

The members of this Committee made extensive inquiries regarding the hospital conditions in Boston as they affect the colored people. After a careful study of the facts they found that the managements of the present established hospitals take a very favorable attitude toward the colored people. On February 25th, 1928, Dr. John J. Dowling, the Superintendent of the Boston City Hospital, over his own official signature said:

"Every department of the Boston City Hospital, including all its facilities, is open to all persons, irrespective of race, creed, or color. I am glad to say that no policy of exclusion exists in this institution."

Other hospitals gave similar assurance that they do not draw the color line, but the policy of the Boston City Hospital is especially significant because it is the one and only fully equipped public hospital in Boston. This is most important to the public because any racial discrimination there would be a public wrong which, if it existed, should be corrected.

The Committee against the Plymouth Hospital is very happy to report that a most open policy in regard to race, creed and color exists in many hospitals approached by the Chairman.

Benton R. Wilson (father of Edward W. Wilson,) President of the Boston Association for the Advancement of Colored People endorsed this statement.

SMALLPOX PATIENTS NOT VACCINATED

Of the seven cases of smallpox reported in Connecticut recently four were delayed reports of cases that occurred in January. These cases were all quarantined at the time they occurred but a recent check up shows that they were not included in the weekly list of cases reported.

The three new cases, like the other cases in the outbreak, were among persons who had never been vaccinated. One is a man who was too busy to be vaccinated. He thought a sore arm might interfere with his work for a day or two. Neighbors living on both sides of him had smallpox but he was not vaccinated. As a result he was shut up for a few weeks with smallpox.

Another is an infant who came down with smallpox when about eighteen days of age. Some of the neighbors of this family had smallpox but the parents thought the infant too young to be vaccinated. The third new case was sixty-seven years of age and had never been successfully vaccinated.

Smallpox attacks both young and old. It attacks the busy and the idle. The moral is—be vaccinated, especially when neighbors have smallpox. No one is too young or too old to have smallpox unless protected by vaccination. No one is too busy to escape smallpox when infection comes his way. Persons may be vaccinated at any age from *one day to a hundred years*. The busy man cannot afford to neglect this important preventive measure. BE VACCINATED.

Also be sure that the vaccination is successful. There are a number of reasons why vaccination may not always "take" on a person who is susceptible to smallpox. One case was reported recently as having been vaccinated three times and the vaccinations did not "take" yet this patient later had smallpox. For protection against smallpox BE VACCINATED and make sure that the vaccination "TAKES".

PROGRESS IN THE ERADICATION OF BOVINE TUBERCULOSIS

The New Jersey Department of Health has issued a circular setting forth the facts with respect to Bovine Tuberculosis quoting Dr. W. H. Donnelly of the New York Postgraduate Medical School who argues for clean milk from tuberculin tested cattle as one important feature of the campaign against this disease.

Also quoting Dr. J. H. McNeill, Chief of the Bureau of Animal Industry for New Jersey who asserts that the cattle of that State are rapidly being freed from this disease.

The United States Bureau of Animal Industry reports that since 1917 about one million cattle affected with tuberculosis have been killed.

The consumption of milk has increased since 1918 by forty-nine quarts per capita because of the greater safety secured by the better grade of cattle brought about by the elimination of infected cows according to this bulletin.

MATERNAL MORTALITY IN RHODE ISLAND

In a letter to the *Rhode Island Medical Journal* Dr. B. U. Richards, Commissioner of Public Health of Rhode Island, announces the forthcoming survey to be made in that State of the causes of maternal mortality to be conducted by a representative of the Children's Bureau in Washington.

This survey has been endorsed by the Rhode Island State Medical Society.

In his letter Dr. Richards refers to "Maternal Mortality" as "one of the dark spots in public health work in the United States," citing the record as standing next to the lowest in the list of twenty countries.

He further claims that Rhode Island makes a better showing in the statistics of maternal mortality than any of the other States with one exception.

HEART DISEASE AND LIFE INSURANCE

The Metropolitan Life Insurance Company paid fourteen million dollars in 1927 for death claims due to heart disease.

This disease is the cause of the largest disbursement by this company, the next being because of deaths due to violence with tuberculosis third and cancer fourth.

This means, probably, that deaths due to cancer are not in so large a proportion among persons in the insurable age.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS

FEBRUARY, 1928

GENERAL PREVALENCE

The total reported incidence of communicable diseases for February was the highest for that month since 1920.

Not only were more cases of measles reported than in any previous February, but the figure sets a new high mark for any month in any year. 11.3 per cent. more cases were reported than the previous high February record in 1926. The reported incidence of poliomyelitis also sets a new high record for February. The incidence of chicken pox and mumps was rather high.

The reported incidence of diphtheria, scarlet fever, influenza, pulmonary tuberculosis, lobar pneumonia, German measles and whooping cough was within endemic limits.

Fifteen cases of typhoid fever were reported for February, 1928. This is slightly lower than the previous low record of seventeen cases reported for June, 1927.

RARE DISEASES

Actinomycosis was reported from Natick, 1; total, 1.

Anterior poliomyelitis was reported from Boston, 6; Brockton, 1; Cambridge, 1; Fall River, 1; Melrose, 1; Newton, 1; Taunton, 1; Woburn, 1; total, 13.

Dog-bite requiring anti-rabic treatment was reported from Belmont, 1; Boston, 9; Brockton, 1; Brookline, 3; Cambridge, 5; Chelmsford, 6; Danvers, 2; Fall River, 3; Greenfield, 1; Hopedale, 3; Lowell, 6; Melrose, 2; Merrimac, 1; Milton, 1; Quincy, 1; Revere, 7; Winthrop, 4; total, 56.

Encephalitis lethargica was reported from Concord, 1; Medford, 2; Somerville, 1; Taunton, 1; Worcester, 4; total, 9.

Epidemic cerebrospinal meningitis was reported from Arlington, 1; Northampton, 1; Quincy, 1; Southwick, 1; Weymouth, 1; Worcester, 2; total, 7.

Septic sore throat was reported from Belmont, 1; Boston, 9; Lowell, 1; Malden, 1; Melrose, 4; Plymouth, 1; Quincy, 2; Winthrop, 2; Worcester, 1; total, 22.

Tetanus was reported from Braintree, 1; Hudson, 1; total, 2.

Trachoma was reported from Boston, 3; Cambridge, 2; Lawrence, 2; Quincy, 1; total, 8.

MONTHLY REPORT OF CERTAIN COMMUNICABLE DISEASES

DISEASE	Cases in Entire Population				Case Rates per 100,000 Pop.		
	Feb. 1928	Feb. 1927	Prosodemic Index	Epidemic Index	Feb. 1928	Feb. 1927	Expected Rate ***
ALL CAUSES	14,596	8,301	-	-	337.5	194.4	-
Ant. Poliomyelitis	13	2	8*	1.6**	.3	.05	.2
Diphtheria	496	424	436*	1.1**	11.5	9.9	10.1
Measles	7,174	855	3,199*	2.2**	165.9	20.0	74.0
Pneumonia, Lobar	604	484	733*	.8**	14.0	11.3	16.9
Scarlet Fever	1,400	2,129	1,219*	1.1**	32.4	49.9	28.2
Tuberculosis, Pul.	415	460	299*	1.4**	9.6	10.8	6.9
Typhoid Fever	15	25	16*	.9**	.3	.6	.4
Whooping Cough	1,079	543	950*	1.1**	24.9	12.7	22.0
Chicken Pox	1,092	1,244	-	-	25.2	29.1	-
German Measles	110	39	-	-	2.5	.9	-
Influenza	57	70	-	-	1.3	1.6	-
Mumps	1,325	1,306	-	-	30.6	30.6	-
Tuberculosis	70	65	-	-	1.6	1.5	-

* This Index is an attempt to estimate the number of cases based on the trend during the past years which can be expected to occur, and is for the purpose of comparison with the number of cases which actually did occur.

** This ratio expresses how prevalent the disease is compared with the index mentioned above; 1.0 indicates that the actual number of cases equals the expected number. A larger number means a greater prevalence, and a smaller number a lesser prevalence than expected. Thus 2.0 would indicate twice the expected number of cases, and .5 half the expected number of cases. The method used to determine the indices is described in The August 18, 1927 issue of the Boston Medical and Surgical Journal.

*** Calculated from the Prosodemic Index.

PRINCIPAL CAUSES OF ILLNESS IN TYPICAL AMERICAN CITY

Public health in a given community depends upon the personal health of each individual. Health officials generally have recognized, according to Surgeon General Cumming of the United States Public Health Service, that although a great deal is accomplished by means that deal with community conditions, yet the individual is the foundation upon which the public health is built. In order to know what diseases must be guarded against it must first be known what diseases are present.

Not only the causes of death but the causes of ill health as well are of great importance to health officers and physicians in their scientific searching for causes and conditions in their preventive work. Of far greater importance than death rates and life table expresion is a view of the health situation depicted by physical impairments as revealed by competent medical examinations and by morbid conditions as ascertained by adequate records of sickness.

With this thought in mind a study was conducted by the Public Health Service extending over more than two years in a city regarded as a typical American small city in one of the eastern States. The information obtained through this study is of great interest to the general public as it shows clearly what diseases are most prevalent in the general population.

The city in which these studies were conducted may be said to be typical of many other cities of its size in the eastern section of the United States. The principal object of this study was a record of illnesses that were experienced by a population group composed of persons of all ages and both sexes, and in no remarkable respect unusual. The records of illnesses obtained were of illnesses as reported to experienced investigators. The reports were made by the household informant, usually the wife, either the sickness as experienced by herself or as she observed it in her family.

The rate of sickness from colds and bronchitis was the highest, being annually 418.6 per 1,000 persons. Influenza and grippe came second with a rate of 143.2 per 1,000; diseases of the digestive system were 96.5 per 1,000; tonsillitis and sore throat 65.7; confinement and other puerperal causes 46.9; diseases of the nervous system, including headaches, 44.1; accidents and other external causes 39.5; measles 34.2; whooping cough 22.6; rheumatism and lumbago 21.8; heart and other circulatory diseases 18.3. The list contains ten or eleven more items and concludes with hay fever and asthma, which is shown to have caused 5.8 cases of sickness each year per 1,000 persons.

From this study fairly accurate records of real illnesses were secured. As a matter of fact less than 5% of the illnesses of exactly stated duration were recorded as one day or less in duration; nearly 80% were three days or longer, and 60% were eight days or longer in duration. Approximately 40% were not only disabling but caused confinement to bed. It is evident, therefore, that in the main the illnesses recorded were more than trivial in their character,

in spite of the fact that in some instances mere symptoms were given as diagnoses.

There are certain facts from this study that stand out with particular significance. First, the extraordinarily high incidence of sickness shown in early childhood was a rather surprising result. Illness was far more frequent under 10 years of age than at any other time of life. Second, the interesting suggestion was afforded that the average individual is more free from illness in the age period 15 to 24 years. Thereafter sickness becomes more frequent as age advances, and it may be added, upon the basis of other studies as well as these, that sickness becomes more severe and more frequently fatal.

The picture given by the record of sickness according to causes, or, more precisely, according to the kind of sickness, is in sharp contrast to that given by causes of death. Respiratory diseases and disorders account for 60 per cent. of sickness as against 20 per cent. of deaths. The general group of "epidemic, endemic, and infectious" diseases account for eight per cent. of illness, whereas only about 2 per cent. of the deaths were due to this group. Digestive diseases and disorders caused 10 per cent. of the illness as against 6 per cent. of the total deaths. On the other hand, the group of general diseases (which includes cancer, the diseases of the nervous and circulatory systems and the diseases of the kidney and related organs) were relatively much more important causes of death than of sickness. The diseases of the heart and blood vessels show the sharpest contrast,—24 per cent. of deaths are due to these conditions, as against only 2 per cent. of the sicknesses. In other words, these diseases manifest themselves relatively rarely in definite attacks of sickness, although they undoubtedly shorten life and make life much less enjoyable while they last.

The prevalence of "chronic" conditions as ascertained by this study is of interest. Of each 1,000 individuals on the average 34 were affected with arthritis, lumbago and myalgia; 22 with neuralgia, neuritis and sciatica; 21 with diseases of the heart; 10 with chronic indigestion and other intestinal disorders; 10 with appendicitis; and 7 with nephritis.

The further query suggests itself—at what age is the individual least able to withstand diseases after he has been attacked? One way to measure this is to compare the attack, the greatest resistance to death in childhood being the age period 5 to 14. The lowest resistance is in infancy and early childhood, 0 to 4 years, and in middle and old age. Ability to survive illness thus varies markedly from resistance to illnesses at different ages, particularly in childhood (5 to 14), when the average individual suffers from illnesses frequently, but has a relatively small chance of dying, and in the older years when not only does his susceptibility to illness increase, but also his chance of death. This is due partly, of course, to the nature of the illness occurring at these ages, and partly to the diminished ability to resist the diseases which manifest themselves in sickness.

It is believed that one of the most important lessons to be drawn from this study is that public health has as yet barely touched the task of preventing the conditions which manifest themselves in physical and mental impairments, in inefficiency and illness, and in postponable death. Plague and pestilences have been diminished, infant and child mortality from infectious and intestinal disorders, and healthful living is being established more and more firmly as a popular ideal, but aside from these the prevention of disease remains as an outstanding problem yet to be solved.

The hope of the future lies in the continued and increasing growth of scientific knowledge which can be applied to the protection against disease, and the promotion of the public health. — *Bulletin United States Public Health Service.*

RECENT DEATH

REGAN — Dr. William H. Regan of 22 Wendell Street, Cambridge, died Wednesday night, March 21, after a brief illness. He was born in Natick, Massachusetts, and was a graduate of the Natick High School and of Tufts Medical School, Class of 1906. He served as house officer on the eye and ear service at Boston City Hospital. He was a member of the staff of St. Elizabeth's Hospital and consulting physician of the Cambridge Tuberculosis Hospital. He also served on the State Board of Registration in Optometry.

OBITUARY

RESOLUTIONS ON DEATH OF DR. ADAM S. MacKNIGHT

At a meeting of the Executive Committee of the Massachusetts Tuberculosis League, Resolutions were adopted as follows:

"The Executive Committee records with sorrow the passing of one of its members, Dr. Adam S. MacKnight, Superintendent of Bristol County Tuberculosis Hospital, and late Chairman of the Tuberculosis Section of the Massachusetts Medical Society.

"Dr. MacKnight's service since his appointment to this Committee has been faithful, and his advice and counsel of great value to the Committee and the Staff of the League.

"It is with deep sorrow we record his death on our minutes and this memorial will express the deep sympathy of the Committee to the members of his family. The President and Secretary are hereby requested to transmit a suitable message of sympathy to the family of Dr. MacKnight."

CORRESPONDENCE

THE HANGMAN ADMINISTERS ORTHOPEDIC TREATMENT TO CATHERINE THE GREAT

Mr. Editor:

The following is from the "Memoirs of Catherine the Great," translated by Katharine Anthony, and based on the German Edition. (Alfred A. Knopf, New York, 1927.)

On Catherine's death this particular memoir, addressed to Countess Bruce was found with others tied up in a single package, and addressed to her son Paul. "They were read by a few, laboriously copied and quietly shown to trusted individuals. During the reign of Paul and Alexander this surreptitious circulation went on without impediment. But

when Nicholas I, the grandson, whom the Empress had neglected, and who had been taught to hate her, came to the Russian throne the memoirs disappeared. The secret police traced the existing copies and destroyed them. The implacable Nicholas then sealed and locked the originals in the state archives and no one dared to open them until the end of his long reign. . . . A solitary copy had escaped the Czar's police and been smuggled out of Russia. It was published simultaneously in England, France and Germany."

The Memoirs are full of descriptions of Catherine's numerous illnesses and Boerhaave's ministrations to her in many of them. The following seems one of the most interesting.

"At the age of seven I took a severe cough. It was the custom to have us kneel each night and morning to say our morning and evening prayer. One evening as I knelt and prayed I was obliged to cough so violently that the effort made me fall on the left side and the stabs of pain almost took my breath away. Someone rushed to me, and I was carried to my bed, which I kept for three weeks. I lay always on my left side and coughed, had stitches, and a very high fever. A proper physician was not in the neighborhood, they gave me remedies, but God knows of what they were composed. At last after a long period of suffering I was able to get up, and when I was dressed it was seen that I had almost taken on the form of a Z. My right shoulder was higher than my left, my back bone formed a zig-zag, and my left side was hollow. My women and those of my mother, whom the former asked for advice, decided that my parent's attentions should be called to it. The first step taken in the matter was to impose the strictest silence on everybody concerning my condition. My parents were very unhappy that one of their children should be lame and the other hunch-backed. At last, when several experts had been questioned in the greatest secrecy it was decided to seek out a skilfull person who knew how to heal dislocations. The searched in vain, for they had a horror of calling in the only person who had skill at it, becauses he was the hangman of the place. This uncertainty lasted for some time, but at last it was decided to fetch him secretly in any case. . . . The man examined me and then gave orders that every morning, as I lay in bed, a maiden still fasting, should rub my shoulder, then my spine, with her spittle. Then he made a kind of jacket which I never laid aside by day or night except to change my linen.

Every other day he came in the early morning to examine me again. Besides this he had me wear a black ribbon which passed around my neck went from the right shoulder around the right arm, and was fastened in the back. In short, I do not know whether it was that I had no tendency to grow crooked or whether these means accomplished it, but at any rate after a year and a half of this treatment there was hope that my health would be restored. I did not lay aside the uncomfortable jacket until I was ten or eleven years of age."

Catherine's description of her acute pneumonia, a probable following purulent pleurisy and the resulting scoliosis as quoted from this memoir, leaves a graphic and vivid impression on the mind of the reader.

Sincerely yours,

March 16th, 1928. WILLIAM PEARCE COUES, M.D.

AN INTERESTING INTERPRETATION OF THE LAW ON PREVENTION OF CONCEPTION IN MASSACHUSETTS

March 17, 1928.

Editor, Boston Medical and Surgical Journal:

On February 8, 1928, the Boston police arrested me on the charge of exhibiting articles for the prevention of conception. The arrest was based on the following law:

> "Whoever sells, lends, gives away, exhibits, or offers to sell, lend or give away an instrument or other article intended to be used for self-abuse, or any drug, medicine, instrument or article whatever for the prevention of conception or for causing unlawful abortion, or advertises the same, or writes, prints or causes to be written or printed a card, circular, book, pamphlet, advertisement or notice of any kind stating when, where, how, of whom or by what means such article can be purchased or obtained, or manufactures or makes any such article, shall be punished by imprisonment in the State prison for not more than five years or in jail or the house of correction for not more than two and one-half years or by a fine of not less than one hundred nor more than one thousand dollars."

For many years I have lectured on the problem of sex and sex hygiene, for women's clubs and for groups of my women patients. In these lectures general hygiene and the physiology of sex were covered in some detail. Incidentally, the subject of birth regulation was introduced as pertinent to any modern discussion of sex hygiene. The use of the so-called spring wire gold pessary was denounced and the dangers of irritation and possible cancer were emphasized. For greater stress, one pessary, which I had extracted from a patient, was shown, and referred to as an instrument of torture. Then a rubber pessary was shown and attention was called to the possibilities of irritation in case this was not selected and fitted by a physician. The "exhibit" (demonstration) of these two pessaries led to my arrest. A private hearing in the Municipal Court resulted. My attorneys pointed out that these pessaries were not being shown for advertising purposes, but to emphasize a warning against their *misuse*. The Court accepted this interpretation.

This interpretation of the spirit rather than the letter of the law is encouraging to physicians, for it indicates that they may go further than laymen, and yet the fact that I was arrested shows the need to change the statute so as to exempt physicians from the hidebound laws imposed upon the public.

An amendment to the existing law setting forth definitely the conditions under which a physician may give birth control information for medical reasons should be sponsored by the medical organization of Massachusetts.

ANTOINETTE F. KONIKOW, M.D.
857 Beacon Street, Boston, Mass.

COMMENTS ON AN EDITORIAL

524 Commonwealth Avenue,
Boston, Mass.,
March 15, 1928.

Editor of THE NEW ENGLAND JOURNAL OF MEDICINE:

I read with interest your critical editorial on Dr. Cabot, Professor of Clinical Medicine and Professor of Social Ethics, Harvard University, in March 8 issue of the JOURNAL. One need not be surprised at

the doctor's pessimistic views about the efficacy of cures by medical means, since they appear to be justified by his experience as published weekly in the JOURNAL, in his discussions of the clinical case records, every one of them being an autopsy case.

His pessimistic views are but the echo of those of an illustrious Harvard professor, who attained distinction in literature, Dr. O. W. Holmes, whose medical practice died in giving birth to the famous apothegm: "If all the medicine in the world was dumped into the sea, it would be good for Humanity and bad for the fishes". Be it noted, however, that the ethical Holmes lived up to his belief, for he early removed his doctor's sign, ceased to practice upon the quick and restrained himself to the safer practice on the dead.

I do not know the nine diseases that Dr. Cabot is quoted as regarding curable by medicine, but, if it be not already in the list, I respectfully request that he add epilepsy to it. Research that disclosed the nature of that disease and thus indicated measures found curative, is back of this request, and ready for demonstration to my fellows when they wish.

If twenty-seven years' general and ten years' neurological practice aid in qualifying for the giving of an opinion, I opine that the newer generation of practitioners with the increasing knowledge of the endocrines and the vitamins have within their grasp the golden age of medicine: let them by earnest study of disease, especially incipient disease, make it their own.

Sincerely yours,

EDWARD A. TRACY, M.D.

NEWS ITEMS

DR. CHARLES SIMPSON MEETS WITH MISFORTUNE—On March 2nd Dr. Charles Simpson of Southbridge, a Fellow of the Massachusetts Medical Society, lost his home and office equipment by fire.

He has the cordial sympathy of his friends.

Dr. Burrage will replace his diploma issued by the Society.

APPOINTMENT OF DR. FRANCIS D. DONOGHUE—The appointment of Dr. Francis D. Donoghue, Medical Adviser to the Massachusetts Industrial Accident Board, as representative of the United States at the fifth International Conference for Medical Science as applied to workmen's accidents and occupational diseases, has been announced. This conference will be held at Budapest, Hungary, September 3rd, 1928.

This is the second time that this honor has been conferred on Dr. Donoghue, who is recognized as an authority in matters relating to industrial accident problems as well as a skillful surgeon. Dr. Donoghue has accepted the appointment.

THE DEATH OF DR. ROBERT ABBE—Dr. Robert Abbe, one of the leading surgeons of this country, died March 7, 1928. He was 77 years of age. His name was associated with the early use of radium and he was credited with the first application of this agent in the treatment of cancer in this country.

He was surgeon at St. Luke's Hospital in New York from 1884 up to the age of retirement.

He had contributed to a cabinet which contained mementos of Rush, Jenner, Pasteur, Lister and Curie of which Dr. William W. Keen is custodian.

NOMINATION BY GOVERNOR FULLER—Dr. Daniel P. O'Brien of New Bedford has been nominated by Governor Fuller as Medical Examiner and Dr. Charles Shanks of New Bedford as Associate Medical Examiner. Both of these nominations are for reappointments.

The Council will undoubtedly confirm the action of the Governor.

APPOINTMENT OF DR. PAUL HOWARD MEANS—After thirty-three consecutive years of service as Medical Adviser for Harvard University, Dr. M. H. Bailey has resigned and Dr. Paul Howard Means has been appointed to fill this position. Dr. Means has been Assistant to Dr. Bailey at the Stillman Infirmary. He graduated from the Harvard Medical School in 1922.

NOTICES

Dr. Mark H. Wentworth of Concord has taken an office at 416 Marlborough Street, where he will meet his patients.

SIR HUMPHREY ROLLESTON AT THE PETER BENT BRIGHAM HOSPITAL

Sir Humphrey Rolleston, Bart., K.C.B., M.D., Regius Professor of Physic at Cambridge, England, will be in residence at the Peter Bent Brigham Hospital, Boston, for the week beginning March 25th, as the fourteenth Physician-in-Chief, Pro tempore, in charge of the medical service of Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physic at Harvard University and Physician-in-Chief of the Peter Bent Brigham Hospital, Boston, Massachusetts.

REPORTS AND NOTICES OF MEETINGS

HARVARD MEDICAL SCHOOL NEWS

On Friday, March 9th, 1928, at the Harvard Medical School Professor George Barger, M.A., D.Sc., F.R.S., Professor of Chemistry, University of Edinburgh, spoke to members of the Medical faculty and students on "Thyroxine and the Thyroid Gland."

In his very scholarly address, Professor Barger carried his audience through a maze of intricate structural chemical formulae. He showed that Kendall, who claimed to have synthesized thyroxine in 1914, and who believed it to be a derivative of oxyindol, was wrong in parts of his reasoning. Herrington, who together with Professor Barger worked on this problem, obtained by his method an extract which was twenty-five times as active as that of Kendall, and which contained 14% iodine as compared with 3% in former attempts.

In synthesizing thyroxin, Herrington and Barger, by using well-known chemical processes, and beginning with P-nitraniline and quinol, made thyroxin which on clinical tests was shown to have the same value as the extract. Kendall's thyroxin was worth $300 per gram, while Herrington's sold for $40 per gram. The synthetic thyroxin sells for $20 per gram.

Professor Barger pointed out that physiological and clinical tests amply demonstate the efficacy of synthetic thyroxin. If thyroxin is added to water in which tadpoles are living, growth is hastened. A certain Mexican amphibian which tends to remain in the larval stage grows up rapidly if thyroxin is injected. So also in myxedematous patients, the synthesized thyroxin raises the metabolic rate 2-3% per mg. which corresponds to the increase for thyroid extract as found at the Mayo Clinic.

The measurement of thyroxin is done by the colorimetric method. It is dissolved in chloroform and compared to a standard. In this way minute amounts can be detected.

In concluding his lecture, Professor Barger recalled the many theories which have been put forth to explain the cause of goitre. He showed that our present knowledge is a throwback to a theory advocated in 1837.

The meeting was well attended and one of the most interesting lectures delivered at the Medical School this year.

STAFF MEETING OF THE MASSACHUSETTS GENERAL HOSPITAL

A staff meeting of the Massachusetts General Hospital was held on March 8. The paper of the evening was delivered by Dr. Elliott C. Cutler, Professor of Surgery at Western Reserve University Medical School, on the experimental production of abscess of the lung.

Dr. Faxon, Resident on the East Surgical Service of the Hospital, reported some observations on ten burn cases, as follows:

Ten cases of burns of varying severity were brought to the Emergency Ward of the Massachusetts General Hospital within an hour of the time they received their injuries. One patient was burned over his entire body, and died within an hour. The remaining cases were all treated with morphine, heat and forcing fluids. The dead epithelium was removed from the burned area and dressings saturated with a 2½% aqueous solution of tannic acid were applied.

The white blood count two hours after entry ranged from 70,000 to 12,000, corresponding closely with the severity of the burns,—the higher counts going with the most serious cases. The four patients with a white blood count of 23,000 or higher all died.

The hematocrit readings showed a concentration of the blood with a finding of 70% twelve hours after entry in the patient with the most extensive burn. There was a steady fall to normal limits in the course of four days under treatment.

The sedimentation rates were slowed, and in two cases there was essentially no sedimentation of the cells at the end of an hour for three days after entry; the later sedimentation readings fluctuated roughly in proportion to the amount of toxic absorption and the resistance of the patient.

A few readings were made of the serum protein content in the more severely burned cases, and showed values below normal, which suggests that the concentration of the blood comes from a leakage of serum out through the damaged capillary walls.

The plasma chlorides were kept essentially normal with treatment which included intra-venous and subpectoral administration of saline solutions.

The urine showed albumen, casts and a few red blood corpuscles according to the severity of the case. With the two late fatalities there was a definite retention of chlorides and fluid as shown by the discrepancy between intake and output, and some edema developed. These two cases showed a marked terminal rise in the non-protein nitrogen of the blood; and with this there developed an acidosis, as shown by the lowered alkali reserve. There was no evidence of an early acidosis in any of the cases.

In presenting his paper, Dr. Cutler first discussed his interest in the whole field of postoperative pulmonary complications and explained how in his repeated studies of this general field he had gradually come to feel that a large percentage of all postoperative pulmonary complications are due to embolism from the operative wound. He stated that the wound itself is the only factor common to all surgical procedures; that all forms of pulmonary complications occur following operations under local anesthesia as well as under general anesthesia; that the increasing perfection of the technique of administering inhalation anesthetics has not reduced the percentage of such complications; that such complications occur more frequently in those cases operated upon by surgeons whose control of bleeding and whose general technique is less careful and exact, and that the frequency of these complications seems to be higher when the part operated upon is a mobile part of the body.

He and his associates began their experiments dealing with the production of abscess of the lung in 1925 with the hope that by utilizing this particular postoperative complication which could be studied well by the X-ray and by postmortem findings they could show the importance of embolism from the wound in the production of postoperative pulmonary complications. Those associated with him in this study are Drs. Schlueter, Weidlein, Holman, Holloway and Herrman, and their investigations have continued over the past three years.

The investigations began with an attempt to reproduce abscess of the lung by placing in the bronchi bacteria and foreign bodies, using a bronchoscope in order to introduce such material into the finer ramifications of the pulmonary tree. Such experiments were uniformly unsuccessful, as was expected from the failure of others who had previously made similar attempts. The next step was to set up a typical experiment where bacteria could be brought to the lung via the blood stream without dissemination. In the first experiments the bacteria were inclosed in gelatine capsules, but it was found more satisfactory to use a small excised segment of the femoral vein. This was filled with bacteria, both ends were tied off and the embolus thus formed was freed into the jugular vein and washed down into the heart with salt solution. Such infected "vein-segment" emboli were held up in the pulmonary arterial tree, and abscess of the lung resulted in a great percentage of such experiments. In order to visualize the exact area where these emboli lodged, small pieces of lead filing were added to the "vein-segment embolus" and the investigators were thus able to study roentgenologically the reaction and eventual central liquefaction in the lesions which resulted.

A second series of experiments was set up in which a simple infected clot, but this time not covered with a vein-segment, was freed into the venous circuit. Such "free infected clots" usually resulted in a diffuse

pneumonitis. Later this experiment was modified by building up the animal's immunity by previous vaccination with the same organism later used in the infected clot. When the factors of immunity were sufficiently high to wall off the process rapidly and when the organisms were not too virulent, abscess of the lung again resulted.

In this set of experiments, however, Dr. Cutler made the criticism that the clot was made outside the body and another series of experiments was carried out in which a clot was manufactured in the dog's own vein. To do this the blood stream was temporarily held up by a ligature, and bacteria and fibrogen were injected into the segment of vein. An infected clot resulted. In these experiments, which were carried out on immune and unimmunized animals, abscess of the lung resulted when the factors of immunity and the virulence of the organism were in the phase that resulted in a walling off process without too rapid destruction of bacteria. In this latter experiment the situation was quite similar to what occurs in man where stasis and infection result in a thrombosis which later may be thrown off into the circulation as an infected embolus and where the reaction in the infected wound manufactures immune substances.

In the majority of the preceding experiments the bacillus coli was used as the infecting agent partly because in dogs there is a high natural resistance to most organisms, partly because there was present in the Laboratory an extremely virulent strain of this organism, and partly because a large number of clinical cases of abscess of the lung are the result of embolism from the abdominal areas where this organism would be present.

More recently these investigators have carried out experiments in chronicity, for most of their experimental absecsses recovered through fibrotic changes within a period of two and a half weeks. By the use of an irritant gas (chlorine), to induce daily coughing, lesions were made to exist as long as thirty-four days, and the investigators point out, as is well known, that coughing by increasing the intrabronchial pressure may have a mechanical effect in producing chronic lesions, though they feel that this is probably of sceondary importance to invasion of the original small abscess focus with organisms from the mouth, especially the spirochaetes and fusiform bacillus.

Through inability to secure spirochaetes in pure culture they had not in their early experiments utilized this organism. A repetition of experiments of the "vein-segment" type, the segment being filled with scrapings from the teeth containing not only the spirochaetes from the mouth and fusiform bacillus but many other organisms, resulted in abscess of the lung in almost every instance. Several of these abscesses have continued to show signs of activity for as long as six and seven weeks.

Experiments in which scrapings from the teeth in large quantities were introduced by the bronchoscope into the finer ramifications of the pulmonary system have not thus far in their hands yielded a single abscess of the lung.

These investigators draw the conclusions that abscess of the lung in the dog may be produced by the lodgment of an infected embolus. This infected embolus may be manufactured in the veins of the animal himself. The matter which dictates whether in any given case diffuse pneumonitis, rapid healing or abscess of the lung occurs seems to be the balance between the immunity of the host and the virulence of the invading organisms. Their experiments with the organisms from the mouth which contain spirochaetes and the fusiform bacilli lead them to think that these organisms are secondary invaders and that perhaps the occurrence in man of a chronic abscess of the lung depends in large extent on whether a small abscess created in the parenchyma by a septic embolus becomes secondarily invaded by these bacteria from the mouth.

Dr. Lord, in opening the discussion, said:

"Dr. Cutler is to be congratulated on having proved that infected emboli in dogs will produce lung abscess. In man, no doubt, infected emboli at times cause the disease; but for prevention it is desirable to know the relative important of aspiration, which Dr. Cutler doubts, and embolisms, which he upholds, as the chief cause. Are spirochaetes, as he maintains, only secondary invaders? An analogous problem is presented by lobar pneumonia. In 1920 Blake and Cecil established the specificity of the pneumococcus by the constant production of pneumonia in certain monkeys inoculated intratracheally with minute amounts of pneumococcus culture. Crowe and Scarff have now shown that lung abscess can be produced in dogs by bronchoscopic inoculation of the main bronchus of a lobe by a small piece of cotton containing scrapings from pyorrhea cavities. Their work and that of others goes far toward establishing an aspiratory origin for abscess and suggests, but does not prove, that spirochaetes and fusiform bacilli are concerned in the process."

Dr. King, continuing the discussion, said:

"While it has long been known that the sputum of persons suffering from pulmonary abscess, chronic bronchiectasis and pulmonary gangrene shows with great constancy spirochaetes of the Vincent type and fusiform bacilli, it is only within recent years that the suggestion has been made that their presence might be something more than mere secondary invasion. It seemed reasonable to us that if these organisms were simply secondary invaders, they should be found in other chronic lung conditions such as pulmonary tuberculosis, malignant disease, etc. As there is nothing in the literature on this point, we thought that it would be interesting to examine carefully for these organisms the sputum in a large series of cases. At the present time, following the method of Smith at Ray Brook, N. Y., we have examined the sputum of 50 patients with lung abscess and chronic bronchiectasis: the spirochaete and fusiform bacillus were present with remarkable constancy in 90% of the cases, and not merely present but present in very large numbers. On the other hand, in about 125 cases of the non-suppurative group, such as pulmonary tuberculosis, asthma, malignancy, etc., these organisms were completely absent in about 80% of the cases and in the remaining 20% were present in exceedingly small numbers. Thus it seemed to us that we could conclude that whether or no the spirochaete and fusiform bacillus played an etiological role in the suppurative diseases, a search for them was worth while as a diagnostic procedure. We have been successful, also, in producing lung abscesses in rabbits by the intratracheal inoculation of material containing large numbers of these organisms. Here again we followed the technique recommended

by Smith: the material is collected from around the teeth of people suffering from pyorrhea, the rabbit is anaesthetized with ether anaesthesia, the trachea is exposed and the material allowed to run in slowly, drop by drop, through a small-bore Wassermann needle which is inserted into the trachea. Our difficulty has chiefly been that we have not been able to produce a chronic abscess."

This work led Dr. King to believe that the aspiration theory of the production of pulmonary abscesses has much in its favor.

The discussion was continued by Dr. Whittemore, Dr. Churchill and Dr. Means.

Dr. Lord, in closing the meeting, expressed the appreciation of the staff of Dr. Cutler's excellent work and his kindness in presenting his paper before them.

The next staff meeting will be on April 12 at 8:15 P. M. A group of subjects will be presented from the Neurological and Neurosurgical Departments.

STAFF MEETING OF THE TRUESDALE HOSPITAL

A clinical meeting was held in the Earle P. Charlton Surgery of the Truesdale Hospital on March 15th. Members of the Newport Medical Society and officers of the U. S. Naval Hospital staff were present by invitation.

From 5 P. M. to 6:30 P. M. a dry clinic was presented as reported herewith. The after-dinner period was devoted to a lecture upon "The Essential Qualifications of a Successful Hospital Administrator," by Captain William H. Bell, U. S. N., Medical Officer in charge of U. S. Naval Hospital, Newport, Rhode Island.

DRY CLINIC

The Early Differential Diagnosis of Miliary Tuberculosis. F. R. Barnes, M.D.

Massive Collapse of the Lung—Discussion of the Condition with Roentgen Ray Findings in three cases. J. McLaughlin, M.D.

The Planning in Diabetes with special reference to the treatment of office patients as compared with that of hospital patients. W. Mason, M.D.

Intussusception in the Adult—Description of the Condition. Its rarity in the adult. Report of a case operated upon by resection of terminal ilium and cecum with recovery. R. W. French, M.D.

Acrodynia—A rare disease of early childhood characterized by an erythema of the hands and feet. G. C. King, M.D.

Bilateral Pyelograms. E. L. Merritt, M.D.

Roentgenological Aspects of Pulmonary Tuberculosis. J. H. Lindsey, M.D.

a. Fat Necrosis in an Obscure Location. b. Modified Billroth No. 1 Operation for Pylorectomy in cases of Gastric Ulcer. P. E. Truesdale, M.D.

MEETING OF THE NEW ENGLAND SOCIETY OF PSYCHIATRY

The regular spring meeting of the Society will be held at the State Hospital for Mental Diseases, Howard, Rhode Island, on Tuesday, April 3, 1928. The Society will be the guest of the State Public Welfare Commission and Dr. Ransom H. Sartwell.

PROGRAM

"Progress in Psychiatry in the Last Twenty-five Years," Arthur H. Harrington, M.D., Consulting Psychiatrist to the State Hospital for Mental Diseases, Providence, R. I.

"Height, Weight and Intelligence Relationship of Three Thousand Five Hundred and Fifty-three Retarded School Children," Neil A. Dayton, M.D., Boston, Mass., Assistant to the Commissioner, Massachusetts Department of Mental Diseases, Director, Division of Feebleminded.

The Howard State Hospital is located at Howard, Rhode Island. Busses leave twice hourly from Providence at the rear of the Biltmore Hotel on Eddy Street. The time is 20 minutes of and 10 minutes after each hour. The busses going past the hospital stone gates are marked "Arctic" and the distance to the administration building of the hospital from this point is about one-half mile. The hospital cars will meet the busses. Members are invited to come in the forenoon when visits can be made to the various points of interest in the institution.

C. A. Bonner, M.D.
Secretary and Treasurer.
Box 50, Hathorne, Mass.

THE BOSTON CITY HOSPITAL NURSES' ALUMNAE ASSOCIATION

Season 1928-1929

The regular meeting of the Association will be held at The Vose House, Tuesday, April the third, at 8:15 P. M.

Mr. Charles F. D. Belden, Director of The Public Library of the City of Boston, will address the members and guests.

Subject: "The Service of The Boston Public Library."

Remember the Semi-Centennial Celebration—1878-1928—October 2-3-4, at Boston, Mass.

Elizabeth C. Fairbank, *Secretary.*
2150 Dorchester Avenue,
Dorchester Center, Mass.

Mary Alice McMahon,
Chairman, Program Committee.
March, 1928.

BOSTON CITY HOSPITAL CLINICAL MEETING MARCH 31, 1928—11 A. M.

PROGRAM

1. Dr. George W. Papen. "A Case of Total Subperiosteal Resection of the Tibia with Complete Regeneration within Six Months."
2. Dr. Frank Fremont-Smith. "Spinal Fluid in Meningitis."
3. Dr. Thomas K. Richards. "One Case of Disease of the Knee Joint."
4. Dr. Townsend W. Thorndike. "Report of a Case of Dermatitis Congelation with Complete Destruction of Tissues. Demonstration of a Case of Gummatous Infiltration of Both Testicles."
5. Dr. Augustus Riley. "Pyelographic Studies as an Essential Aid in Diagnosis Made in the Out-Patient Department."
6. Dr. George P. Sanborn. "Effect of Swift-Ellis Treatment upon the Spinal Fuid in Neurosyphilis."
7. Dr. John A. Foley. "Ambulatory Treatment of Gastric Ulcer."
8. Dr. William R. Morrison. "Series of Perforated Ulcers of the Stomach and Duodenum Operated on under Novocain Local Anesthesia with Posterior

Gastro-Enterostomy and Closure of the Abdomen without Drainage."

9. Dr. Charles C. Lund. "Relation of the Basal Metabolism to the Action of Morphine."

10. Dr. Louis J. Ullian. "Basal Metabolism in Icythyosis. A Severe Diabetic with Abscesses at Site of Insulin Injection."

11. Dr. Percy B. Davidson. "Ulcer of Esophagus."

MEETING OF THE NEW ENGLAND HEART ASSOCIATION WITH THE HARTFORD COUNTY MEDICAL SOCIETY

APRIL 3, 1928

Hunt Memorial Library
38 Prospect Street, Hartford, Conn.

4:00 P. M. CLINIC

1. Heart Disease and Hypertension. Dr. William H. Robey, Boston.

2. Heart Disease and Pregnancy. Dr. Burton E. Hamilton, Boston.

3. Heart Disease in Children. Dr. Hyman Green, Boston.

8:00 P. M.

1. The Heart in Anaesthesia and Surgery. Dr. H. M. Marvin, New Haven.

2. The Present Status of Cervical Sympathectomy. Dr. Samuel A. Levine, Boston.

3. Paravertebral Alcohol Injections in Angina Pectoris. Dr. Paul D. White, Boston.

HARVARD MEDICAL SOCIETY

The Harvard Medical Society held a regular meeting on Tuesday, March 13, 1928, at 8:15 o'clock at the Peter Bent Brigham Hospital. After the presentation of cases, Dr. Harvey Cushing introduced Dr. Richard P. Strong, who took for his subject "The Harvard African Expedition of 1927 with reference to Biology and Medicine."

The first case was presented by Dr. Taylor for the medical service. A girl of 13, five years ago began to have increased thirst and appetite, and was more tired than normal. At that time she was treated by the Children's Hospital for diabetes. Eleven months ago she came into the hospital in diabetic coma and with a pneumonia. She was brought out of coma satisfactorily with intensive insulin treatment and has been followed by the Out-door Department diabetic clinic. She came into the hospital for a readjustment. She presented a difficult problem typical of young diabetics. With large doses of insulin to bring down the high blood sugar she had a characteristic insulin reaction, so that orange juice had to be given. She varied from day to day in her blood sugar as much as 0.30%. Her blood sugar seemed to be lowest in the afternoon. She was presented to show the difficult problem involved in controlling and balancing her diet and insulin.

The second case was presented by Dr. Farber for the surgical service. The patient was an Irish widow of 72, who had always been strong and healthy till six days ago when she was suddenly taken with nausea, vomiting, and generalized abdominal pain. After staying in bed for two days, she saw a doctor who sent her into the hospital. With the diagnosis of appendicitis she was operated on immediately, and an acute appendix with perforation was found. Records of the hospital show that of 1000 appendectomies done since 1916, only 3 were between 70 and 80 years of age. The patient was presented because she represented 0.3% of operated cases and because she was getting along so well.

Dr. Strong's account of the expedition was a general one and only included scientific allusions where they came in the natural sequence of the story. Aided by motion pictures, he carried his audience through a survey of Liberia and on across the continent through the Belgian Congo.

It was thus planned that America should be interested in Liberia for four reasons. First, we founded it; second, we are the sole advisers now; third, it is an important source of our rubber supply; fourth, the internal loan to Liberia has been refunded and a new loan of five million dollars has been negotiated through a New York bank.

The country of Liberia was induced to take care of the freed slaves. Twenty-six years after the first settlement, or in 1847, a constitution was adopted similar to that of the United States, though the country is only a republic in name. In addition to the seventeen different tribes of the interior, there are ten to twelve thousand American negroes in the capital and surrounding towns. The climate is very conducive to fevers, the rainy season lasting from May to November. The water supply is obtained from wells and cisterns. A survey of the children showed that 86% had malarial parasites in their blood and 36% had large spleens. In the market places many cases of yaws and gangosa were evident. Umbilical hernias were common. Much trypanosomiasis of various kinds and sleeping sickness were evident. In certain animals killed, cysticercus was found in the liver.

A description of big game hunting was also given and many excellent pictures shown in illustration. Some of the entomological and botanical findings of the expedition were outlined, showing the diversity of interests in the expedition.

The meeting was unusually well attended and of exceptional interest.

SOCIETY MEETINGS

March 29—Meeting of the New England Section of the American Academy of Physiotherapy. Detailed notice appears on page 270, issue of March 22.

March 30 and 31—Second Annual Conference on Public Health. Complete notice appears on page 224, issue of March 15.

March 31—Boston City Hospital Clinical Meeting. Complete notice appears on page 321 of this issue.

April 3—Meeting of the New England Heart Association with the Hartford County Medical Society. Complete notice appears elsewhere on this page.

April 3—Meeting of the New England Society of Psychiatry. Complete notice appears on page 321 of this issue.

April 3—Boston City Hospital Nurses' Alumnae Association. Complete notice appears on page 321 of this issue.

April 12—Massachusetts General Hospital Staff Meeting. Detailed notice appears at the end of Massachusetts General Hospital Staff Meeting report on page 321 of this issue.

June 18-22—Convention of the Catholic Hospital Association. Complete notice appears on page 1597, issue of February 16.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

May 2, 1928 (Wednesday)—Annual meeting at Haverhill, 12:30 P. M., at the Haverhill Country Club, Brickett Hill, Gile Street, Haverhill.

May 3, 1928 (Thursday)—Censors meet for examination of candidates at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M. Candidates should apply to the Secretary,

J. Forrest Burnham, M.D., 567 Haverhill Street, Lawrence, at least one week prior.

Essex South District Medical Society

April 11 (Wednesday)—Essex Sanatorium, Middleton. Clinic at 5 P. M. Dinner at 7 P. M.

Dr. Raymond S. Titus, "Obstetrical Emergencies." Discussion by Drs. J. J. Egan of Gloucester and A. T. Hawes of Lynn, 10 minutes each, and from the floor.

May 3 (Thursday)—Censors meet at Salem Hospital for the examination of candidates at 3:30 P. M. Candidates should apply to the Secretary, Dr. R. E. Stone, Beverly, at least one week prior.

May 8 (Tuesday)—Annual meeting. Detailed notice appears on page 1437, issue of January 26.

Norfolk District Medical Society

May 3—Censors' meeting. Roxbury Masonic Temple, 4 P. M. Applications will be mailed by the Secretary upon request. Detailed notice appears on page 271.

May 8—Annual meeting. Details to be announced.

Suffolk District Medical Society

Combined meeting of the Suffolk District Medical Society and the Boston Medical Library will be held at the Boston Medical Library, 8 The Fenway, at 8:15 P. M., as follows:

April 25—Annual meeting. Election of officers. Prof. Julius Bauer, Professor of Medicine in the University of Vienna, and Physician-in-Chief to the Polyclinic, will deliver an address. His subject will be announced later.

The medical profession is cordially invited to attend this meeting.

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

BOOK REVIEWS

De Lamar Lectures—1926-1927. Edited by CHARLES E. SIMON. The Williams & Wilkins Company, Baltimore, U. S. A.

In this book of 225 pages are reproduced a series of lectures given at the School of Hygiene and Public Health of the Johns Hopkins University, pursuant to a provision of the will of the late Joseph R. De Lamar, "to give the people of the United States generally the benefits of increased knowledge concerning the prevention of sickness and disease and also concerning the conservation of health by proper food and diet".

The subjects comprise: Natural immunity in its sigfnificance for epidemiology; The variability of bacteria with special reference to infectious disease; Heart disease from the point of view of public health; Some pioneers in parasitology; Tularaemia; Etiology, prevention and serum treatment of Measles; The preparation and use of scarlatinal streptococcus antitoxin; Bovine tuberculosis in its relation to man; The personal factor in coal mining; Environment in relation to health; Some criteria of the results of malaria control measures.

The lectures have been carefully prepared by men who have made international reputations for proficiency in their respective fields and the book offers a convenient means of obtaining up-to-date information regarding the subjects to which the lectures relate.

Diagnosis and Treatment in Disease of the Lungs. By FRANK E. TYLECOTE, M.D., and GEORGE FLETCHER, M.D. Oxford Medical Publication.

This book is a small volume of 258 pages divided into eleven chapters. Its aim is to place before the senior student or the young practitioner the ordinary methods of diagnosis and treatment of the commoner forms of lung diseases in such manner as to prove helpful to him in his practice.

In Chapter I is taken up the general anatomy and physiology of the lung, deformities of the chest, and the arts of palpation, percussion and auscultation. Chapter II is devoted to bronchitis. The amazing statement is made in this chapter that in England and Wales this disease causes more deaths than pulmonary tuberculosis. The only answer to this statement probably is that the diagnosis or at least the reported diagnosis must be wrong in order to make such an impression as this for, certainly, except in the case of the very young and very old, bronchitis does not cause death. One notes in this chapter and throughout the book formulas for long and elaborate prescriptions of the old, shotgun type which are no longer used in this country.

Chapter III is devoted to bronchiectasis, in the treatment of which the statement is made that creosote is the most useful drug either taken internally or by an inhaler. Not only is creosote advised here but in various lung conditions. This is certainly harking back to the dark ages as creosote as a therapeutic agent in lung diseases has long since been thrown into the discard where it belongs.

In Chapter IV, devoted to emphysema, asthma and hay fever, many long and elaborate prescriptions often containing 6-7 ingredients are given. It is to be taken for granted, of course, that neither hay fever or asthma can be successfully considered in the compass of a few pages as is attempted in this instance. In Chapter VI, devoted to pleurisy, the writers wisely emphasize the fact that bronchial breathing over a dull area, aspecially in young children, does not rule out the presence of fluid. Later on, considering gangrene of the lung, various prescriptions are given, each one containing creosote. The Chapter on pneumonia is rather elementary which is perhaps a good fault. Pneumoconiosis and allied conditions are simply touched upon and the subject of tuberculosis and its diagnosis and treatment is taken up in about 60 pages so that it is naturally considered in a very brief and cursory way.

With the exception of its tendency to use the elaborate, multifold prescription and to stamp with approval the use of creosote, this little book will certainly do no harm and, as it is clear and easy reading, may do a certain amount of good.

Crawford W. Long and the Discovery of Ether Anesthesia. By FRANCES LONG TAYLOR. Paul B. Hoeber, Inc., New York, 1928. xiii + 237 pages. 111.

Mrs. Taylor, the daughter of Crawford W. Long, has written a very sympathetic account of her father's life. There is, of course, special emphasis put upon his use of ether as early as March 30, 1842, to produce insensibility at the time of an operation. All the facts of the matter are clearly set forth and one feels entirely justified in considering Crawford Long as the first man to use ether for the purpose of producing surgical narcosis. The controversy which raged for so many years in Washington and elsewhere in regard to the priority of the discovery of ether is no longer of special importance to the medical profession. Our lack of knowledge, however, of Dr. Long, the kindly country practitioner, who lived in Georgia just prior to and during the Civil War, entirely justifies the publication of this tribute from a devoted daughter to her father.

The Medical Department of the Army, Its History, Activities and Organization. By JAMES A. TOBEY, Major, Sanitary Corps (Reserve), U. S. A. Published by the Johns Hopkins Press, Baltimore, Maryland. 161 pages.

Tobey's "Medical Department of the Army" is one of the monographs published by the Institute for Government Research with the purpose of presenting in condensed form an outline of the history and activities of the various federal services and bureaus.

The author reviews the history of the Medical Department from its inception in 1775, and summarizes most admirably the main historical events and the chief factors in ts development. He shows the position it held in each of the wars, and points to the steady decrease in mortality from disease.

The activities of the Department and its scheme of organization are described. Appendices contain information of value to those who wish to ascertain facts about the present organization and conduct of the Department.

The first portion of this monograph, which deals with the history of the Department, is interesting reading. The remainder of the book is valuable as a source of information.

The Harvey Lectures. 1926-1927. Williams & Wilkins Company, Baltimore. 1928.

This is the twenty-second volume in this series and it maintains the usual high standard of scientific literature. Neufeld discusses the origin of tuberculosis, and Chambers presents the description of microdissection of living cells, a most fascinating subject. There are articles on gastric juice by Michaelis, on action potential in nerve by Erlanger, and health and activity (industrially considered) by Collis. The relation of organic chemistry to medicine is Willstatler's contribution, and Jacobs discusses the exchange of material between the erythrocyte and its surroundings.

Neoplastic Diseases, Third Edition. A treatise on Tumors. By JAMES EWING, M.D., Sc.D., Professor of Pathology at Cornell University Medical College, New York City, Third Edition, Revised and Enlarged. Octavo of 1127 pages with 546 illustrations. Published by W. B. Saunders Company, Philadelphia and London.

"Neoplastic Diseases", in its two preceeding editions, has already made for itself an important place in medical literature. In the third edition rather extensive changes have been made. The chapter on Tumors of Bones has been entirely rewritten on the basis of information obtained largely from the Codman Registry of Bone Sarcoma, and several new subvarieties of these tumors have been formally recognized. The classification of Mammary Cancer has been simplified, and brought more in accord with clinical varieties. The subject of Brain Tumors has been recast, brought in line with recent contributions in this field, and the newer nomenclature has been partly adopted.

Besides these changes, some sixty new illustrations have been added.

Ewing's book is written with a broad outlook over the whole field of new growths. The first portion consists of a discussion of the general aspects of tumors. Their general pathology, their effect on the organism, their chemistry and etiology, are described. The chief theories of the causation of cancer and the outstanding points in cancer research are reviewed.

The section on Special Oncology deals with various types of tumors and with the tumors of the different organs of the body. In discussing each variety of tumor, Ewing summarizes the opinion of other pathologists and gives a resume of the important research work bearing on that subject. If difference of opinion exists, Ewing presents the leading arguments on each side.

The book is a valuable contribution to our knowledge of neoplasms. It is unfortunate that it cannot be sold at a lower figure, for the price of $14 is likely to prevent its purchase by many who would otherwise like to own it.

Bedside Diagnosis. By American Authors, edited by GEORGE BLUMER, M.D., Clinical Professor of Medicine, Yale University, School of Medicine; Attending Physician to the New Haven Hospital. Three Octavo volumes, totalling 2820 pages, containing 890 illustrations. Philadelphia and London: W. B. Saunders Company, 1928.

A work with an attractive title. The author arouses enthusiasm at once in his preface by promising stress on "the importance of observation by the unaided senses, or at least by the senses aided only by the simple instruments as the thermometer, the stethoscope, and those examinations which any physician can make without extensive laboratory equipment." A new note is here struck which, as *music,* replaces much of the *noise* in modern medical literature. It is a work *by* specialists, but not *for* specialists. Rather it is a very valuable addition to the equipment of the internist and of those practitioners of medicine who diagnosticate before advising treatment. A medical work confined solely to diagnosis based on physiology and common sense, is especially refreshing in these days when so many *opinions* about treatment are put forward in books and articles in the guise of established and reliable facts.

Illustrations are plentiful, but not excessive in number. Particularly illuminating and instructive are the photographs illustrating the various endocrine disturbances. The reproductions of typical roentgenograms are unusually clear and well described.

The bibliography in most of the sections is adequate and not confusing. Access to topics is made simple by an excellent and accurate index.

It is obvious that 64 contributors cannot all maintain an equally high level of excellence. There are, indeed, a few weak places scattered through the three volumes; but they are scarce and not of great weakness. The work is of a high order—not easily compared with the well-known and popular systems of medicine. It should have a prominent place in the library of all high grade physicians.

Modern Baking Powder. By JUANITA E. DARRAH. The Commonwealth Press, Inc. Chicago, Illinois, U. S. A. Pp. 125.

This small book describes the sodium aluminum sulphate baking powder of the Calumet Company, and is written to show that aluminum and phosphorous are healthful constituents of food.